Can Computers Be Fair?

How Automated and Human-Powered Online Dispute Resolution Affect Procedural Justice in Mediation and Arbitration

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In both private and public justice systems, online dispute resolution (ODR) technologies are profoundly affecting people's access to justice and redress and the nature of their procedural experiences. Automation and artificial intelligence play a key role in delivering the promise of ODR. At the same time, there are challenging normative and practical concerns regarding the ability of "machine made justice" to meet appropriate procedural and substantive standards. The article presents a conceptual framework for evaluating the role of technology in dispute resolution and its effect on procedural justice. Subsequently, it proposes an instrument for evaluating procedural justice experiences in ODR; and reports the results of a study comparing the impact of automated (software-powered) and human-powered online mediation and arbitration on disputants' procedural justice experiences. Finally, the article discusses the implications of its findings on ODR process design, regulation, and practice, and calls for updating the research agenda on these issues.

I. INTRODUCTION

Internet technologies are transforming the way justice systems operate, presenting new thrilling opportunities for delivering legal services, improving access to justice, and providing redress. Previously used only for decomposed outsourced tasks such as e-filing, online scheduling, or collaborative document editing, online systems are now used to deliver comprehensive legal services, from start to end. Online Dispute Resolution (ODR) systems are at the forefront of this trend, responsive to—and shaped by—the social and technological changes of the digital age.

ODR systems are internet-based platforms that enable parties to a dispute to complete the *entire* resolution process, from filing through final determination, in an online environment.[1] Since the early 2000s, ODR systems have been employed by both private and public justice systems to deliver a variety of dispute resolution processes, including mediation, arbitration and judicial proceedings.[2] Today, world-over, ODR systems resolve cases by the millions, handling disputes that originate both online and offline. They operate in a wide array of legal domains, including: family disputes, small claims, consumer and commercial disputes, traffic penalties, and administrative appeals.[3] For example, eBay's online "Resolution Center"[4] reportedly handles over sixty million e-commerce disputes annually.[5] In England and Wales, "Money Claim Online,"[6] a judicial ODR platform for fixed sum claims of up to £100,000, issues more such claims than any other local county court; and

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[1] There are different definitions of ODR in the literature. *See Introduction, in* ONLINE DISPUTE RESOLUTION: THEORY AND PRACTICE 1, 3 (Mohamed S. Abdel Wahab et al, eds.) (2012).

[2] *See* Ethan Katsh, *ODR: A Look at History, in* ONLINE DISPUTE RESOLUTION: THEORY AND PRACTICE (Mohamed S. Abdel Wahab et al., eds.) (2012).

[3] For a review and analysis of current ODR systems and models, *see* Ayelet Sela, *The Effect of Online Technologies on Dispute Resolution System Design: Antecedents, Current Trends and Future Directions* 21 LEWIS & CLARK L. REV. 635 (2017).

[4] *See* Resolution Center, EBAY, http://resolutioncenter.ebay.com/ (Sept. 18, 2017).

[5] *See* Amy J. Schmitz & Colin Rule, THE NEW HANDSHAKE: ONLINE DISPUTE RESOLUTION AND THE FUTURE OF CONSUMER PROTECTION 53 (2017); Colin Rule & Chittu Nagarajan, *Leveraging the Wisdom of Crowds: The eBay Community Court and the Future of Online Dispute Resolution* ACRESOLUTION MAGAZINE (Winter 2010); Katsh, *supra* note 2, at 15; Bruce T. Cooper, *Online Dispute Resolution Comes of Age,* THE PRACTICAL LITIGATOR 33, 35 (July, 2009) (All reporting the figure of 60 million annual disputes).

[6] Money Claim, HM COURTS AND TRIBUNAL SERVICES, https://www.moneyclaim.gov.uk (Sept. 18, 2017).

the ODR system of the "Traffic Penalty Tribunal"[7] conducts the majority of its appeal hearings exclusively online.[8]

The impact of ODR—and the importance of studying it—have been significantly boosted by two recent trends. First, ODR systems are increasingly institutionalized: several legal systems in North America and Europe have launched judicial ODR systems;[9] and both the European Union and the United Nations promoted the institution of cross-border ODR systems for commercial disputes.[10] Second, there are constant growth and development in the number of ODR systems and the richness of the technologies and services they provide. The migration of dispute resolution processes to the online space does not stop at transposing the interaction from a courtroom or conference hall to a chat room. Reliance on information technology and artificial intelligence paves the way for new conceptual models, process structures, and forms of service delivery that were previously impossible. Specifically, many ODR systems now incorporate automation technologies such as expert systems, algorithmic resolutions and machine learning in order to handle large volumes of disputes, reduce costs and personalize procedures and outcomes.[11]

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[7] Traffic Penalty Online Appeal Entry Form, TRAFFIC PENALTY TRIBUNAL OF ENGLAND AND WALES, http://www.trafficpenaltytribunal.gov.uk/want-to-appeal/ (Sept. 18, 2017).

[8] *See* TRAFFIC PENALTY TRIBUNAL OF ENGLAND AND WALES, *Annual Statistics Report 2014-2015,* 7, https://www.trafficpenaltytribunal.gov.uk/wp-content/uploads/2016/11/TPT_Annual_Statistics_Report_14_15.pdf.pdf. (reporting that 68% of the hearings were conducted exclusively online).

[9] *See, e.g.*, S.B.C., *CHAPTER 25*, CIV. RESOL. TRIBUNAL ACT, 25 S.B.C. (2012); http://www.bclaws.ca/civix/document/id/complete/statreg/12025_01 (instituting ODR for small claims, traffic cases, and certain property cases); the Money Claim Online judicial ODR platform (discussed *supra* note 6); and LORD JUSTICE BRIGGS, *Civil Courts Structure Review: Interim Report*, JUDICIARY OF ENG. & WALES (December 2015) https://www.judiciary.gov.uk/wp-content/uploads/2016/01/ccsr-interim-report-dec-15-final1.pdf. (recommending the establishment of an online court for claims up to £25,000).

[10] *See* Council On Online Dispute Resolution For Consumer Reports Regulation No 524/2013 of the European Parliament and of the Council of 21 May 2013 on Online Dispute: http://eur-ex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:165:0001:0012: EN:PDF; United Nations Commission on International Trade Law (UNICITRAL) Rep. on its 43rd Session, U.N. DOC. A/65/17 at 257 (2010); UNICTRAL's Working Group III (Online Dispute Resolution): http://www.uncitral.org/uncitral/commission/working_ groups/3Online _Dispute_Resolution.html.

[11] *See* Sela, *supra* note 3.

For both its innovative potential and growing impact, ODR is considered a "disruptive legal technology;"[12] a part of an evolving "shift in legal paradigm"[13] that is poised to transform the legal marketplace and displace many features of contemporary legal systems.[14] Surprisingly, however, little is known about the ways in which technology affects disputants, process and outcome. More specific to the topic of this article:

> Considering the amount of literature published by legal scholars about ODR, it is quite surprising to notice that few authors have dealt with . . . the issue of human interaction . . . While the legal issues can easily be grasped and analyzed, it is much more difficult to understand how ODR proceedings are perceived by the stakeholders . . .[15]

Over four decades of research on dispute resolution systems established that their appropriateness, legitimacy, and effectiveness greatly depend on having reliable data about all their impacted stakeholders,[16] and especially

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[12] *See* RICHARD SUSSKIND, THE END OF LAWYERS? RETHINKING THE NATURE OF LEGAL SERVICES 99-145 (2008) (identifying a non-exhaustive list of ten disruptive legal technologies: automated document assembly, relentless connectivity, the electronic legal marketplace, e-learning, online legal guidance, legal open-sourcing, closed legal communities, workflow and project management, embedded legal knowledge, and online dispute resolution). Typically, cheaper, simpler, smaller, and more convenient to use, disruptive technologies have the potential to transform industries and markets by challenging the way they operate.

[13] RICHARD SUSSKIND, THE FUTURE OF LAW 97 (Revised edition, 1998), Richard Susskind, TOMORROW'S LAWYERS: AN INTRODUCTION TO YOUR FUTURE (2013) (suggesting that over the next two decades, legal institutions and lawyers are bound to change more radically than they have over the last two centuries).

[14] *See* Susskind *supra* note 12, 13; Orna Rabinovich-Einy, *Balancing the Scales: The Ford-Firestone Case, the Internet, and the Future Dispute Resolution Landscape* 6 YALE J. OF L. & TECH. 2, 21 (2004) ("internet society will . . . alter the dispute resolution landscape in fundamental ways").

[15] Philippe Gilliéron, *From Face-to-Face to Screen-to-Screen: Real Hope or True Fallacy?* 23 OHIO ST. J. ON DISP. RESOL. 301, 325-26 (2008).

[16] *See, e.g.*, Stephanie Smith & Janet K. Martinez, *An Analytic Framework for Dispute Systems Design*, 14 HARV. NEG. L. REV. 123 (2009); Lisa B. Bingham, *Control Over Dispute-System Design and Mandatory Commercial Arbitration*, 67 LAW & CONTEMP. PROBS. 221 (2004); Khalil Z. Shariff, *Designing Institutions to Manage Conflict: Principles for the Problem Solving Organization*, 8 HARV. NEG. L. REV. 133 (2003). These works echo the general principles laid out by: WILLIAM B. URY, JEANNE BRETT & STEPHEN GOLDBERG, GETTING DISPUTES RESOLVED: DESIGNING SYSTEMS TO CUT THE COSTS OF CONFLICT (1988); and CATHY A. COSTANTINO & CHRISTINA SICKLES MERCHANT,

disputants.[17] There is a rich literature that explores disputants' experiences in court[18] and ADR[19] processes, primarily in terms of procedural justice. This article expands this work to ODR and responds to the calls to understand how ODR proceedings are perceived by the stakeholders.[20] It examines theoretically and empirically a central question in ODR: How reliance on automation affects disputants' procedural justice experiences in two types of ODR processes: binding arbitration and consensual mediation.

In ODR, "process" is a compound concept, comprised of both the dispute resolution *method* (e.g. mediation or arbitration) and the properties of the *technology* used for delivering it (e.g. text vs. video, synchronous vs. asynchronous; automated vs. human-powered). Different combinations of technology and method are expected to interact, resulting in potentially divergent effects on disputants' procedural justice experiences.[21] This article

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DESIGNING CONFLICT MANAGEMENT SYSTEMS: A GUIDE TO CREATING PRODUCTIVE AND HEALTHY ORGANIZATIONS (1996).

[17] *See also*, Donna Shestowsky, *Misjudging: Implications for Dispute Resolution*, 7 NEV. L.J. 487, 490 (2007) (reviewing the literature on "how laypeople assess dispute resolution procedures")

[18] *See* Tom R. Tyler, *What Is Procedural Justice?: Criteria Used by Citizens to Assess the Fairness of Legal Procedures* 22 L. & SOC. REV. 103, 128 (1988); E. Allan Lind et al., *In the Eye of the Beholder: Tort Litigants' Evaluations of Their Experiences in the Civil Justice System*, 24 L. & SOC. REV. 953 (1990); Donna Shestowsky, *The Psychology of Procedural Preference: How Litigants Evaluate Legal Procedures Ex Ante*, 99 IOWA L. REV. 637 (2014).

[19] *See, e.g.*, Donna Shestowsky & Jeanne M. Brett, *Disputants' Perceptions of Dispute Resolution Procedures: An Ex Ante and Ex Post Longitudinal Empirical Study*, 41 CONN. L. REV 63 (2008); Nancy Welsh, *Stepping Back Through the Looking Glass: Real Conversations with Real Disputants about Institutionalized Mediation and its Value*, 19 OHIO ST. J. DISP. RESOL. 573 (2004); Debra L. Shapiro & Jeanne M. Brett, *Comparing Three Processes Underlying Judgments of Procedural Justice: A Field Study of Mediation and Arbitration*, 65 J. PERSONALITY & SOC. PSYCHOL. 1167 (1993).

[20] *See* Gilliéron, *supra* note 15, at 326; Alan Gaitenby, *The Fourth Party Rises: Evolving Environments of Online Dispute Resolution*, 38 U. TOL. L. REV 371-72 (2006) (pointing out the need to "pay attention to tool users' behavior and perception of ODR experiences"). A related project led by a team of European collaborators culminated in the 2012 publication of a handbook on measuring the costs and quality of ODR, which includes a proposed framework for evaluating disputants' experiences in ODR. *See* Laura Klaming, *Quality of ODR Procedures, in* COSTS AND QUALITY OF ONLINE DISPUTE RESOLUTION: A HANDBOOK FOR MEASURING THE COSTS AND QUALITY OF ODR, 143 (Martin Gramatikov, ed.) (2012).

[21] *See also*, Kathleen L. McGinn & Rachel Croson, *What Do Communication Media Mean for Negotiators? A Question of Social Awareness*, *in* THE HANDBOOK OF NEGOTIATION AND CULTURE 334-37 (Michele J. Gelfand & Jeanne M. Brett, eds. 2004) (proposing three principal properties of communication media that produce measureable

explores the interaction between the degree of *autonomy* that the *technology* possesses in the process and the degree of third-party *decision control* in the dispute resolution *method*. In other words, all things being equal, it examines whether in ODR, disputants' perception that the third-party is a person or an artificially-intelligent software results in different procedural justice experiences; and whether these experiences are sensitive to control over the outcome by the disputants (consensual mediation) or the third-party (binding arbitration).

Addressing this multi-faceted question requires accounting for its many components. Section I introduces the distinction between instrumental and principal ODR processes as a conceptual framework for evaluating the role and autonomy of technology in dispute resolution processes. Subsequently, it applies the framework to classify current ODR systems. Section II draws on literature in dispute resolution, communication, human-computer interaction, technology, psychology, procedural justice and philosophy, to consider how instrumental and principal ODR may impact disputants' procedural justice experiences. Section III reports the design, procedure and results of an experiment testing how (perceived) software and human third-parties affect disputants' procedural justice experiences in online mediation and arbitration. Finally, Section IV discusses the implications of the findings and of the developments in principal and instrumental ODR applications on the nature, practice and regulation of ODR, calling for an updated research agenda on these issues.

II. CONCEPTUALIZING THE ROLE OF TECHNOLOGY IN ODR

A. Technology as the Fourth Party

The key differentiator of ODR processes from their offline predecessors is extensive reliance on information technology in the delivery of services. While everyone agrees that ODR applications are more than "just software,"[22] not everyone agrees in what sense this is the case. Proponents of ODR typically argue that technology can make many dispute resolution processes more accessible, easier, faster and less expensive to complete, and that it can

influences on social interaction, and hence, also dispute resolution: synchronicity, multiple-channels, and high efficacy). *See also*, the discussion in section III below.

[22] Gaitenby, *supra* note 20, at 372 (ODR tools are the product of individual and collective consciousnesses empowered by a multitude of social, cultural and technical tools).

introduce new features that will improve the quality of the process. They contend that the rapid technological advancements coupled with the growing internet-immersion in people's day-to-day life make ODR a natural next step in the evolution of dispute resolution.[23] Critics of ODR, on the other hand, argue that dispute resolution processes cannot be adequately conducted online because "cyberspace is not a 'mirror image' of the physical world."[24] They fear that the claimed efficiencies of ODR come at the expense of procedural quality, due to the limitations that the online environment imposes on human communication. Privacy, confidentiality, and the neutrality of the online interface are also causes for unease.[25] Some commentators argue, therefore, that ODR systems are justified only for simple, low-value disputes.[26]

To conceptualize the idea that ODR software plays a critical role in the dispute resolution process, Katsh & Rifkin coined the term *The Fourth Party*.[27] It suggests that the online space shapes the manner in which parties interact

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[23] *See e.g.* Ethan Katsh, *Bringing Online Dispute Resolution to Virtual Worlds: Creating Processes through Code*, 49 N.Y.L SCH. L. REV 271 (2004); David Allen Larson, *Technology Mediated Dispute Resolution (TDMR): Opportunities and Dangers*, 38 U. TOL L. REV. 213 (2006-2007); Gabrielle Kaufmann-Kohler & Thomas Schultz, ONLINE DISPUTE RESOLUTION: CHALLENGES FOR CONTEMPORARY JUSTICE (2004); Jelle van Veenen, *From :-(to :-) Using Online Communication to Improve Dispute Resolution*, TISCO Working Paper No. 2/2010 (July 2010), *available at:* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1618719.

[24] Joel B. Eisen, *Are We Ready for Mediation in Cyberspace?* 1998 BYU L. REV. 1305, 1308, 1310 (1998) (arguing that ODR has had a weakening negative effect on the dispute resolution process).

[25] *See, e.g.*, *id.*; Joseph B. Stulberg, *Mediation, Democracy, and Cyberspace*, 15 OHIO ST. J. ON DISP. RESOL. 619, 641 (2000) (discussing how mediators in online mediation may not capture certain non-verbal cues, the process can be damaged. Examples include a speaker's hesitation, a smile or frown, changes in tempo, and formality or informality in one's demeanor and tone); Janice Nadler, *Rapport in Legal Negotiation: How Small Talk can Facilitate E-mail Dealmaking*, 9 HARVARD NEGOT. L. REV. 223 (2004) (negotiating via email can lead to misunderstandings, sinister attributions, and ultimately, impasse); Ethan Katsh & Leah Wing, *Ten Years of Online Dispute Resolution (ODR): Looking at the Past and Constructing the Future*, 38 U. TOL. L. REV. 19, 41 (2006) (reviewing the key criticism of ODR); Julio César Betancourt & Elina Zlatanska *Online Dispute Resolution (ODR): What Is It, and Is It the Way Forward?* 79 INTL. J. ARB. MED. & DISP. MGMT. 256, 263 (2013).

[26] *See, e.g.*, Betancourt & Zlatanska, *supra* note 25, at 263; Julia Hornle, *Encouraging Online Dispute Resolution in the EU and Beyond*, 38 EUR. L. REV 208 (2013) (criticizing ODR initiatives that "move away from due process . . . and justify this with the argument that cross-border low-value and high volume disputes cannot be solved other than through very efficient, highly automated, and hence, cost-effective procedures.").

[27] Ethan Katsh & Janet Rifkin, ONLINE DISPUTE RESOLUTION: RESOLVING CONFLICTS IN CYBERSPACE 93-94 (2001).

and process is delivered. The appearance, arrangement, and functions built into an ODR system structure what is (and what is not) possible and likely to occur.[28] In fact, "the fourth party" is a particular case of a larger socio-techno-legal phenomenon in virtual environments, which Lessig famously termed "code is law."[29] It conveys the notion that the way that a software tool is designed and programmed to operate is not neutral; it reflects—and promotes—particular values which affect the way it services its users.[30]

B. Instrumental vs. Principal ODR Systems

Despite the neat appeal of a homogenous conceptualization of technology's role in ODR, the tremendous developments that the field has undergone render the singular fourth-party concept insufficient, both descriptively and normatively.[31] The various—substantially different—roles that technology can play in the dispute resolution process call for more fine-grained definitions. The fundamental distinction proposed here, refers to the degree of autonomy the software possesses in providing dispute resolution

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[28] *Id.* at 33, 93.

[29] Lawrence Lessig, CODE: AND OTHER LAWS OF CYBERSPACE 6 (1999) (analyzing the way law is embedded in the software code of virtual environments and how this code can be systematically used either to protect or erode our fundamental values).

[30] In the context of ODR, *see also* David A. Larson, *"Brother, Can You Spare* a *Dime?" Technology Can Reduce Dispute Resolution Costs When Times Are Tough and Improve Outcomes*, 11 NEV. L. J. 523, 548-549 (2001) ("When parties are asked to choose an option . . . how are those options determined? If a party cannot make a decision and a default option is available, upon what considerations was that default option based? Is the program designed to guide parties to a settlement regardless of whether that is their desire under these circumstances?"); Rafal Morek, *The Regulatory Framework for Online Dispute Resolution*, 38 U. TOL.L. REV. 163, 188-189 (2006-2007) ("In ODR, inefficiency, errors, or bias can be hidden under nicely crafted computer interfaces based on the way the program was constructed."); Orna Rabinovich-Einy, *Technology's Impact: The Quest for a New Paradigm for Accountability in Mediation*, 11 HARV. NEGOT. L. REV. 253, 274-276 (2006); Orna Rabinovich-Einy & Ethan Katsh, *Lessons from Online Dispute Resolution for Dispute System Design*, *in* ONLINE DISPUTE RESOLUTION: THEORY AND PRACTICE (Mohamed S. Abdel Wahab et al, eds.) 39, 50, 52 (2012).

[31] Farned suggested classifying ODR into three classes with some mention to the role of technology, proposing that Class I ODR deals with disputes that arise online, Class II deals with dispute that arise offline, and Class III deals with either kind of disputes without human assistance. Unfortunately, Farned offers no concrete definition for each class, and the examples given seem to overlap between classes. *See* Dusty Bates Farned, *A New Automated Class of Online Dispute Resolution: Changing the Meaning of Computer-Mediated Communication*, 2 FAULKNER L. REV 335, 337-341 (2011).

services: instrumental ODR systems play a classic fourth party role,[32] facilitating the interaction between the disputants and third-party in the process whereas principal ODR systems play the role of both the fourth and third parties.[33]

Instrumental ODR systems are essentially a virtual space for convening the dispute resolution process: a specialized communication platform that enables conducting the process online. Typically, instrumental ODR systems provide generic process orientation and help parties collect and deliver information in a manner constructive to the dispute resolution process: planning, interaction, and decisionmaking remain in control of the human parties who use them. Instrumental ODR platforms require, therefore, a human third-party to operate them and communicate with the disputants.[34] More advanced software tools can be used in the process, but they have no decisive role or autonomy.

Principal ODR systems go beyond enabling communication and access to information; they take a proactive role facilitating the resolution of the dispute. Typically powered by artificial intelligence, principal ODR systems automate classic third-party capacities such as identifying interests and goals, educating parties about available options, refining preferences and defining strategies, diagnosing applicable rules and applying them, classifying and routing cases to relevant resolution paths, calculating tradeoffs and enabling maximization of mutual gains, generating resolution options, and determining final outcomes.[35] As such, principal ODR processes can relieve disputants of many of the dependencies on the limited and expensive supply of expert human third parties. The ability of artificially intelligent systems to deliver professional

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[32] Katsh & Rifkin's "fourth party" does not conceive of technology as replacing the human third-party, but rather as aiding in or enhancing his/her work (*See supra* note 27, at 94.).

[33] *See also*, Arno R. Lodder, *The Third-party and Beyond. An Analysis of the Different Parties, in particular the Fifth, Involved in Online Dispute Resolution*, 15 INFO. & COMMUNICATIONS TECH. L. 144, 151 (2006) (proposing that an automated ODR platform that relies on blind-bidding can be described as the third-party.); Davide Carneiro et al., *Online Dispute Resolution: An Artificial Intelligence Perspective*, ARTIF. INTELL. REV (2012) (Published online January 3, 2012) *available at:* http://link.springer.com/article/10.1007 %2Fs10462-011-9305-z (drawing a conceptually similar distinction between first and second generation ODR systems, the proposed instrumental/principal conceptualization avoids any such implied temporal chronology).

[34] With the exception of negotiation processes where the two parties communicate directly.

[35] For a review of third-party functions supported by AI technologies in current ODR systems see the application of the instrumental/principal typology below, as well as Larson, *supra* note 30, at 550; Carneiro et al., *supra* note 33.

services and perform complex and nuanced interactive tasks is constantly evolving, and can now be augmented by a human-like interactional experience.[36] These developments are bound to have an effect on principal ODR, introducing new qualitative features into the practice of dispute resolution.[37]

The instrumental/principal conceptualization is a useful framework for studying the impact of technology on ODR processes.[38] The clear distinction is useful for testing the isolated effect of the role of technology, although in reality, many ODR platforms present a tiered hybrid model: beginning with instrumental capacities and transitioning to principal capacities, or vice versa. In such instances, it is more useful to talk about instrumental and principal *processes*.[39]

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[36] Technologies that were once a considered a gadgetty curiosity—such as the natural-language processing abilities employed by IBM's jeopardy-player computer, Watson; or the voice recognition capabilities of Apple's personal assistant software, Siri—are now harnessed to deliver professional services, including legally-oriented services, *see* Susan Beck, *The Future of Law*, THE AMERICAN LAWYER (August, 2014). For examples of specific ODR applications, *see generally* Douglas Walton & David M. Godden, *Persuasion Dialogue in Online Dispute Resolution*, 13 ARTIFICIAL INTELLIGENCE & L. 273 (2005) (proposing the modeling of persuasion dialogues in negotiation to allow them to be implemented in a computerized fashion in an ODR system); Gian Piero Turchi, Valeria Gherardin & Federico Bonazza, *The Web Service on The Evaluation of The Mediation Effectiveness for E-Commerce Disputes: A Strategic Tool for Developing and Promoting ODR Services*, Paper Presented at the 11th International ODR Conference (2012) (presenting a tool for analyzing discursive repertories in ODR communications); Larson, *supra* note 30, at 550.

[37] For a review of AI ODR, *see* David A. Larson, *Artificial Intelligence: Robots, Avatars, and the Demise of the Human Mediator*, 25 OHIO ST. J. ON DISP. RESOL. 105, 114-154 (2010); Carneiro et al. *supra* note 33. For discussion of the effect of such new ODR technologies on dispute resolution methods and system design, *see* Sela, *supra* note 3.

[38] Capturing the illusive boundary between "instrumental negotiation" and "principal mediation" may be more art than science, and thus challenging for the principal/instrumental framework (pinpointing the point at which an ODR process based on structured information exchange provides sufficient facilitative capacities to cross the threshold of "instrumental negotiation" into the realm of "principal mediation"). Such an ODR system may warrant its own *sui generis* category. *See* Rabinovich-Einy & Katsh, *supra* note 30, at 55. Similarly, blind-bidding-based ODR systems can be classified as either "instrumental negotiation" or "principal arbitration." The determining factor may be the parties' willingness to submit themselves to the outcome the software yields. Thus, I tend to agree with Rule's view that blind-bidding ODR systems are akin to arbitration. (Colin Rule, ONLINE DISPUTE RESOLUTION FOR BUSINESS: B2B, E-COMMERCE, CONSUMER, EMPLOYMENT, INSURANCE, AND OTHER COMMERCIAL CONFLICTS 57 (2002)).

[39] Hybrid ODR platforms commonly commence with a principal phase including an automated intake to define interests, identify applicable rules, discover issues of agreement

Examples of instrumental ODR platforms include straightforward platforms such as *net-arb.com*,[40] *SettleToday.com*,[41] the ODR platforms operated by the *Consumer Protection Agency*[42] and the *Civil Resolution Tribunal* (CRT)[43] in the Canadian district of British Columbia, and the *Traffic Penalty Tribunal*.[44] These platforms follow a common process design theme: The parties and neutral(s) communicate and exchange evidence via a web-interface that serves as a private online case-environment.[45] Some instrumental ODR platforms, such as *Money Claim Online*[46] and ODR platforms for property assessment appeals,[47] rely heavily on structured information collection in web-forms to streamline the process, but a human case officer or judge manages the process and issues decisions.

Most principal ODR platforms in the market offer a hybrid process design, commonly starting with a principal process, and if necessary, concluding with a human-facilitated instrumental process, although the reverse sequencing can also be found.[48] Reliance on automation and AI in ODR can take many different forms. Likely the most famous example of a principal ODR process is the *eBay Resolution Center*.[49] It is a questionnaire-based algorithmic expert system that performs the role of a mediator: collecting factual information,

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/disagreement, and propose resolutions (sometimes followed by constructed negotiation (or "automated mediation") to attempt resolution. If resolution is not reached, parties may continue to an instrumental phase, facilitated by a human mediator, arbitrator, judge or jury. Conversely, a med-arb process design can begin with a mediation process facilitated on an instrumental platform, and if resolution is not reached, move to a principal phase using blind-bidding automated arbitration.

[40] *See* INTERNET-ARBITRATION, http://www.net-arb.com/.

[41] *See* SEATTLE TODAY, http://www.settletoday.com.

[42] *See* CONSUMER PROTECTION BC, http://www.consumerprotectionbc.ca/odr.

[43] *See* CIVIL RESOLUTION TRIBUNAL, https://www.civilresolutionbc.ca.

[44] *See supra* note 7.

[45] The web interface may support different communication options, such as web-forms, e-mail messages, online boards, chat-rooms, file uploads or online audio or video-conferencing. Some platforms support additional features, such as collaborative text editing, caucusing (private communications of one party with the neutral) and editable resolution templates.

[46] *See supra* note 6.

[47] Several similar systems are operated by: Ohio Board of Tax Appeals, *available at:* http://bta.ohio.gov/; Property Appraisal by Alachua County, FL Property Appraiser *available at* http://www.acpafl.org/ResCenter/index.html; Fulton County Board of Assessors Appeal Process, *available at*: https://fultoncounty.modria.com/; Property Assessment Appeals by the Assessor of Property, Davidson County, TN *available at*: https://padctn.modria.com/

[48] *See* the discussion on med-arb using blind bidding, *supra* note 39.

[49] RESOLUTION CTR., http://resolutioncenter.ebay.com/.

identifying preferences, and suggesting resolution options. It is considered by many "the paradigmatic example of an ODR system,"[50] perhaps because it presented the first obvious business-case for designing an automated principal ODR system: Employing staff to resolve over sixty million annual buyer-seller disputes was operationally and economically impossible, especially given the low value of the disputes.[51] To automate the process, eBay constructed a decision-tree of "paths to resolution" based on patterns it detected in the ways disputes emerge and get resolved. It helps disputing buyers and sellers to diagnose the problem and it generates concrete resolution options that both parties are likely to accept.[52] Today, eBay Resolution Center automatically resolves 90% of its case load without involvement of a human third-party;[53] the rest proceed to an instrumental process managed by a neutral from eBay, based on the information that was shared.

Another example of a principal ODR system is automated arbitration by (double) blind-bidding. *CyberSettle*,[54] *SmartSettle One*,[55] and the *Freelancer*

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[50] Rabinovich-Einy & Katsh, *supra* note 30, at 54

[51] Colin Rule, the former director of eBay's dispute resolution program indicated that the disputes "[C]an be for as little as $5, such as a magazine, or as much as $50,000, such as a car, but the average is probably around $100" and that "[due to] the overwhelming volume of cases . . . even if I had built a staff of 1000 skilled online mediators, we would not be able to get through the torrent of cases. . . . It was self-evident that the process needed to be as automated as possible." (Colin Rule, *Making Peace on eBay: Resolving Disputes in the World's Largest Marketplace* ACRESOLUTION MAGAZINE, Fall 2008, at 8, 9).

[52] Essentially, eBay employed a "big-data" approach. Because all transaction related activities are performed on eBay's own website (with its financial partner PayPal) the company gained "[F]amiliarity with the spectrum of disputes [which] enabled [them] . . . to design dedicated systems tailored specifically to each dispute type." (Rule, *supra* note 51, at 10). Such modeling was feasible because the vast majority of eBay disputes are of a narrowly-defined consumer-type (product is late/missing/broken /not as described, etc.) and eBay has complete visibility into the lifecycle of disputes on its platform.

[53] *See* Schmitz & Rule, *supra* note 5, at 53. ("eBay's ODR was successful because the automated resolution rate reached 90%. That meant that 90% of the 60 million disputes were resolved in software only. . . ."). See further (Rule, *supra* note 51, at 10); Cooper, *supra* note 5, at 35 (referring to a report by Colin Rule, the Director of Dispute Resolution at eBay/Paypal. If the automated phases failed to yield a resolution, the dispute would move to an evaluation phase, where eBay and payment system provider PayPal would decide the case).

[54] *See* CYBERSETTLE, http://www.cybersettle.com. In 2013 the company launched PayMed, and it is now focusing only on settlements in the medical bills industry.

[55] *See Smartsettle One +*, SMARTSETTLE, http://www.smartsettle.com/home/products/smartsettle-one/

ODR system[56] perform this service for single-issue monetary disputes; Fair Outcomes' *Adjusted Winner* process[57] employs a similar mechanism for multi-issue disputes. In blind-bidding processes, parties submit several settlement proposals (typically three); the ODR system sequentially checks the proposals against each other to detect a monetary range of possible agreement; if matched proposals fall within this range, the algorithm yields a final award by splitting the difference. On some platforms, all proposals are confidential; on others, only the reservation/acceptance point is confidential.

Another notable principal ODR system, *Smartsettle*,[58] aims to maximize the utility product of mediation processes by overcoming problems of information sharing and non-collaborative strategic behavior. Parties jointly define the issues in controversy, confidentially indicate their preferences with respect to each issue, and then exchange "package proposals" to define the range of their agreement/disagreement. The software uses their initial stated preferences and their reported level of satisfaction with each proposal to automatically generate new "package proposals" that the parties are more likely to mutually accept. The process is repeated until a win-win solution is found.[59]

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[56] Freelancer is an online market for clients and service providers. It offers its users an ODR service which combines blind bidding with human-ran arbitration for more complex cases. *See Dispute Resolution Services*FREELANCER, http://www.freelancer.com/faq/topic.php?id=25.

[57] *See Fair Division,* FAIROUTCOMES, INC, http://www.fairoutcomes.com/fd.html ("[A] bidding process that guarantees each party at least 1/2 of what that party considers to be the total value of all of the items or issues in question—and usually allows each party to receive between 2/3 and 3/4 of that value—facilitating a win-win outcome."). The company also offers a single issue blind bidding system: Fair Buy Sell *See Fair Buy-Sell,* FAIROUTCOMES, INC, http://www.fairoutcomes.com/fb.html).

[58] *See* SMARTSETTLE, http://www.smartsettle.com/. For a detailed description of Smartsettle see Earnest M. Thiessen & Joseph P. McMahon Jr., *Beyond Win-Win in Cyberspace*,15 OHIO ST. J. ON DISP. RESOL. 643 (2000).

[59] Smartsettle's process design is discernable from their promotional videos. *See e.g. Smartsettle Videos, SMARTSETTLE,* http://smartsettlefamily.com/the-process/ and http://www.smartsettle.com/home/resources/videos/. Thiessen & McMahon think that such a sophisticated mediation software would be "[B]est employed by a qualified [human] neutral facilitator . . . ." ,*supra* note 58, at 645, while Ware & Cole seem to refer to it as an improved mediator, that "[T]akes the foundation of mediation and then adds to it both analytical rigor and technological power," Stephen J. Ware & Sarah R. Cole, *ADR in Cyberspace*, 15 OHIO ST. J. ON DISP. RESOL. 589, 592-3 (2000).

Finally, *Juripax*[60] is an example for an ODR system that includes a combination of instrumental and principal mediation phases by design. Parties first go through a case-intake stage designed as a branching questionnaire that leads the parties through decision-tree logic of their case. Completing the questionnaire serves a dual purpose. From the disputants' perspective, it automates the beginning of the mediation process, educating them about the process and what they can expect, helping them to confidentially collect and organize information about the case and identify their interests in a structured form, and instilling in them a collaborative attitude. From the perspective of the human mediator who manages the subsequent instrumental mediation phase, the principal phase streamlines all parties' process preparation and assists the mediator in identifying contested issues.[61]

The instrumental/principal conceptualization of the role of technology in ODR systems is an effective comparative framework for studying the fundamental question at the heart of ODR: how does technology influence the parties, process, and outcome? This article focuses on the first two themes, arguing that disputants' evaluation of the fairness of an ODR process would vary between instrumental and principal ODR, and that this difference is sensitive to control over the outcome. In order to examine these questions empirically, an experiment was conducted to test disputants' procedural justice experiences in instrumental and principal ODR, in both consensual (mediation) and binding (arbitration) procedural settings. Section II provides a theoretical framework for discussing these questions and sets the experimental hypotheses. The procedure and results of the experiment are presented in Section III.

III. PROCEDURAL JUSTICE IN INSTRUMENTAL VS. PRINCIPAL ODR

The term *procedural justice* encapsulates the idea of fairness in the processes by which decisions are made, as distinct from distributive justice, which refers to fairness in the distribution of the outcome. It is an effective comparative criterion for evaluating dispute resolution processes because it transcends differences in method, context, goals, and in ODR—also

[60] In 2014, Juripax was acquired by Modria. However, Juripax's unique process design can still be viewed in a promotional video available at: *Juriprax Online Mediation Technology,* YOUTUBE, https://www.youtube.com/watch?v=2WE4R-4oCQY.

[61] Juripax displays the responses of the two parties in a comparative table (visible only to the mediator), facilitating (when possible—automatically) the identification of uncontested and contested issues.

technology;[62] its effects have been consistently replicated across cultures and settings, using multiple methodologies.[63] Procedural justice is commonly understood as comprising four dimensions: *process control* (control over the opportunity to present evidence), *decision control* (control over the final outcome), *interactional justice* (the decision maker's treatment of a person with politeness, dignity and respect), and *informational justice* (the availability of information and explanations about the process and its justification).[64] The dimensions and the instruments for measuring them were developed and tested in many applied studies,[65] and are generally applicable to ODR.[66]

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[62] *See also,* Tom R. Tyler, *The Quality of Dispute Resolution Procedures and Outcomes: Measurement Problems and Possibilities*, 66 DENV. U. L. REV. 419, 422 (1989); Thomas D. Halket, *Improving Arbitration through Technology: A Quest for Basic Principles*, 62 DISP. RESOL. J. 54, 56, (2007) ("[A]ny meaningful basic principles will need both to be relatively general in nature as well as to avoid the requirement, or even the context, of the use of specific technologies.").

[63] *See* Robert MacCoun, *Voice, Control, and Belonging: The Double-Edged Sword of Procedural Fairness* 1 ANNU. REV. LAW SOC. SCI. 171, 171(2005) (noting that procedural justice effects have "[B]been replicated [using] a wide range of methodologies (including panel surveys, psychometric work, and experimentation), cultures (throughout North America, Europe, and Asia), and settings (including tort litigation, policing, taxpayer compliance, support for public policies, and organizational citizenship)."). The weight of the dimensions of procedural justice may vary by context and culture, *See, e.g*, Joel Brockner et al., *Culture and Procedural Justice: The Influence of Power Distance on Reactions to Voice*, 37 J. EXP. SOC. PSYCHOL. 300 (2001).

[64] The first two dimensions were articulated in: John Thibaut & Laurens Walker, PROCEDURAL JUSTICE (1975). The latter two dimensions were usefully outlined by Jason A. Colquitt, *On the Dimensionality of Organizational Justice: A Construct Validation of a Measure*, 86 J. OF APPLIED PSYCH 386 (2001), building on earlier concepts in: Robert J. Bies & Joseph S. Moag, *Interactional Justice: Communication Criteria for Fairness*, *in* RESEARCH ON NEGOTIATION IN ORGANIZATIONS (Robert J. Bies et al., eds.) 43 (1986); Robert J. Bies & Debra L. Shapiro, *Interactional Fairness Judgments: The Influence of Casual Accounts* 1 SOCIAL JUSTICE RESEARCH 199 (1987).

[65] Notable contributions were made by: Gerald S. Leventhal & Jurgis Karuza Jr. & William R. Fry, *Beyond Fairness: A Theory of Allocation Preferences*, *in* JUSTICE AND SOCIAL INTERACTION: EXPERIMENTAL AND THEORETICAL CONTRIBUTIONS FROM PSYCHOLOGICAL RESEARCH 167 (Gerald Mikula, ed. 1980), and the prolific work of Tyler & Lind, including: Tom R. Tyler & E. Allan Lind, *A Relational Model of Authority in Groups*, 25 ADVANCES IN EXPERIMENTAL SOCIAL PSYCHOLOGY 115 (1992); Tom R. Tyler & Stephen L. Blader, COOPERATION IN GROUPS: PROCEDURAL JUSTICE, SOCIAL IDENTITY, AND BEHAVIORAL ENGAGEMENT (2000); and their many works cited *supra* notes 18 and 62, and *infra* in notes 179–182.

[66] *See also,* Klaming, *supra* note 20, at 149.

Like other dispute system design choices,[67] conducting the process in an online environment affects disputants' procedural justice experiences.[68] The medium of communication is directly related to informational justice and interactional justice,[69] which were shown to affect decision-control and process-control judgments as a heuristic.[70] Moreover, the specific forms of information exchange and processing that an ODR system enables directly affect disputants' ability to "tell their story" (exerting process-control and decision-control) and their impression that they are being "heard."

The discussion in this section brings together literature on procedural justice, communication, legal technology, psychology, and philosophy to outline the impact that instrumental and principal processes are expected to

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[67] *See, e.g.*, Amy J. Cohen, *Dispute Systems Design, Neoliberalism, and the Problem of Scale*, 14 HARV. NEGOT. L. REV 51 (2009) (discussing that dispute system design choices should be mindful of contextual and institutional variables that may affect parties, and particularly procedural power imbalances).

[68] *See* Ayelet Sela, *Streamlining Justice: How Online Courts Can Resolve the Challenges of Pro Se Litigation*, 26 CORNELL JOURNAL OF LAW & PUBLIC POLICY 331 (2017). *See also,* Leah Wing & Daniel Rainey, *Online Dispute Resolution and the Development of Theory*, *in* ONLINE DISPUTE RESOLUTION: THEORY AND PRACTICE 23, 26 (Mohamed S. Abdel Wahab et al, eds. 2012) ("[T]he dilemmas that ODR disputants and practitioners face . . . are likely to emerge from the impact of technology on party interaction and their conflict-related communications."); Llewellyn J. Gibbons, Robin M. Kennedy & John M. Gibbs, *Cyber-mediation: Computer-mediated Communications Medium Massaging the Message* 31 N.M. L. REV. 27, 48 (2002) ("[T]he singular difference between computer-mediated communication and face-to-face communication is that non-verbal cues are reduced or eliminated in CMC, [but] there is no agreement on the effect that this has on the communicative process."). Compare with Van Veenen, *supra* note 23, 6 (arguing that there may be advantages to conducting dispute resolution communications online).

[69] *See also*, Marta Poblet, et al., *Mediation, ODR, and the Web 2.0: A Case* for *Relational Justice* AICOL WORKSHOPS: LECTURE NOTES IN COMPUTER SCIENCE 6237) 205, 205 (2009) (discussing the importance of *Relational Justice* in ODR: "[T]he justice produced through dialogue and cooperative behavior, negotiation, and agreement among natural or artificial actors.").

[70] Tyler & Lind explain that interactional indicators serve as fairness heuristics for the overall complex judgment of procedural justice, acting as "social signs and symbols that people are comfortable interpreting . . . a workable solution to some difficult problems." (Tom R. Tyler & E. Allan Lind, *Procedural Justice*, *in* HANDBOOK OF JUSTICE RESEARCH IN LAW 65, 80-81 (Joseph Sanders & Lee V. Hamilton, eds. 2001). Notably, heuristics are especially powerful when people are self-represented and have little knowledge or experience of the proceedings they take part in, a typical situation in many ODR processes. *See also,* Kees Van den Bos, *Fairness Heuristic Theory: Assessing The Information to Which People Are Reacting Has A Pivotal Role in Understanding Organizational Justice*, *in* THEORETICAL AND CULTURAL PERSPECTIVES ON ORGANIZATIONAL JUSTICE 63 (Stephen W. Gilliland, et al, eds. 2001).

have on disputants' experiences in online mediation and arbitration. The discussion thus sets the hypotheses for the subsequently reported experiment. The hypotheses are premised on two ideas: First, holding constant all other process and outcome variables, disputants' procedural justice judgments are shaped by their assumptions, expectations, and attributions about interacting with human and software third-parties. Second, these cognitive mechanisms operate differently when the role of the third-party is to facilitate the interaction (mediation) or to issue a binding decision (arbitration).

Since evaluations of dispute resolution processes, procedural justice and communication media are sensitive to context and setting,[71] the discussion assumes the *specific* characteristics of the studied ODR setting: A med-arb process, conducted on a structured text-based web-interface (the *EZSettle* experimental ODR platform) for resolving a multi-issue e-commerce dispute.[72] As a preview, the following predictions emerge from the discussion: When the third-party's role is to facilitate the interaction, a *software mediator* would be preferred, whereas when it is to issue a binding outcome, a *human arbitrator* would be preferred. Accordingly, principal ODR would result in more positive procedural justice experiences in mediation; and instrumental ODR would be perceived as more procedurally just in arbitration. Lastly, over the course of a med-arb process, disputants are expected to prefer that the mediation and arbitration would both be either instrumental or principal. The literature supporting these predictions is described below; a summary of the hypotheses is provided at the end of this section, in Table 1.

A. Online Mediation: Expectations about Constrained Interaction

The key role of mediators is to facilitate a fruitful interaction between the parties to help them resolve the dispute. When interacting over an ODR

[71] *See* Ethan Katsh, *Dispute Resolution in Cyberspace*, 28 CONN. L. REV 953, 974 (1996) ("[C]ontext can influence the approach of the neutral, the choice of process, and the behavior and attitudes of disputants . . . . Context implicitly feeds us information about . . . how the injury or dispute is perceived by those involved . . . . [W]e react and adjust accordingly as the parameters of the environment become clear to us."); Edith Barrett-Howard & Tom R. Tyler, *Procedural Justice as a Criterion in Allocation Decisions*, 50 J. OF PERS.& SOC. PSYCH. 296 (1986) (arguing that in formal settings bias suppression, decision quality, consistency and representation are more important whereas in cooperative situations consistency, decision quality and ethicality matter most). Gramatikov makes a similar point in the context of measuring the quality of ODR processes (*infra* note 119 at 7).

[72] For a detailed description of *EZSettle*'s interface and process design, as well as the details of the dispute, *see* Section III.

system, people's judgment of the quality of the interaction is shaped by what they *expect* from such interaction, and the degree to which the interaction that *occurs* meets their expectation. The "Adjusted Expectations" hypothesis is premised on the notion that people expect richer communication when interacting with other people than when interacting with software. Thus, in the *EZSettle* ODR system, principal mediation would be preferred because its constrained lean text-based interface is more compatible with people's expectations about interacting with software than with their expectations about interacting with other people.

1. ONLINE INTERACTION IN CONFLICT: NON-VERBAL CUES, TRUST AND EXPECTATIONS

Mediators' role relies heavily on effective communication.[73] They facilitate the interaction to help the parties agree on an acceptable outcome, by assisting them to: build trust and rapport, exchange information, improve their understanding of the dispute, identify their interests, and collaborate creatively. Interpretation of these communications depends not only on the words used to deliver them, but also on the availability of non-verbal cues and the communicators' expectations about each other.

According to the *Principle of Audience Design* (PAD), "messages should be designed to accord with an addressee's ability to comprehend them."[74] Non-verbal contextual, emotional, and behavioral cues contribute to people's ability to interpret what their interactional counterparts *intended* their words to mean and to regulate social interaction. In dispute resolution contexts, the absence of non-verbal cues can be particularly detrimental because disputants' antagonistic interpersonal and strategic orientation often leads them to misconstrue communicative intentions and "fill in" information that worsens the dispute rather than promotes its resolution.[75] Interaction on ODR systems

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[73] For a review of the role of communication in dispute resolution see Robert M. Krauss & Ezequiel Morsella, *Communication and Conflict*, *in* THE HANDBOOK OF CONFLICT RESOLUTION: THEORY AND PRACTICE 144 (Morton Deutsch & Peter T. Coleman, eds. 2006).

[74] *See id.* at 150.

[75] *See* Krauss & Morsella, *supra* note 73, at 146-148. *See also* McGinn & Croson, *supra* note 21, at 334 (discussing the communication medium as a social context variable that affects parties' perceptions and interactions); Laura Klaming, Jelle van Veenen & Ronald Leenes, *I Want the Opposite of What You Want: Reducing Fixed-pie Perceptions in Online Negotiations*, 2009 J. DISP. RES. 139. *See generally* on communication as social context variable in dispute resolution: Thompson, *supra* note 73; Robin L. Pinkley, Terri L. Griffith & Gregory B. Northcraft *"Fixed pie" a la Mode: Information Availability,*

is largely shaped by their design—the specific way in which the platform delivers messages. *EZSettle,* like most ODR platforms, is text-based, and does not convey non-verbal cues.[76]

Expectations—and attributions we make based on them—also play an important role in shaping our perceived ability to convey messages and accurately interpret and predict the messages and actions of others. Moreover, expectations cause us to instrumentally adjust our behavior throughout the process (for example, our level of risk-taking) to fit our "cognitive map" of expectations about our interactional counterparts' values, norms, and behavior.[77] Interestingly, in the context of dispute resolution, expectations—and the inferences we continuously make about the "character" and "motivations" of the third-party—are tightly connected to procedural justice experiences.[78] Research shows that the mere belief that one is interacting with a computer or human is sufficient to change one's attitudes and behavior.[79] At

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Information Processing, and the Negotiation of Suboptimal Agreements, 62 ORGANIZATIONAL BEHAV. & HUM. DECISION PROCESSES 101 (1995).

[76] Sela, *supra* note 3.

[77] *See* Leigh Thompson, Margaret Neale, & Marwan Sinaceur, *The Evolution of Cognition and Biases in Negotiation Research: An Examination of Cognition, Social Perception, Motivation, and Emotion, in* THE HANDBOOK OF NEGOTIATION AND CULTURE 7, 9 (Michele J. Gelfand & Jeanne M. Brett, eds. 2004) ("[P]eople attempt to make sense out of novel situations by using previously developed knowledge structures . . . [which] operate in a top-down fashion to direct information processing, including attention, categorization, and retrieval."); Zoe I. Barsness & Anita D. Bhappu, *At the Crossroads of Culture and Technology: Social Influence and Information-Sharing Processes During Negotiation, in* THE HANDBOOK OF NEGOTIATION AND CULTURE 350, 351-353 (Michele J. Gelfand & Jeanne M. Brett, eds. 2004) (discussing the operation of cognitive scripts and schemas in communication). Due to "confirmation bias," we are likely to continue interpreting messages we receive in consistency with our preconceptions about the software or human third-party who delivers them. *See* Owen D. W. Hargie, *Interpersonal Communication: A Theoretical Framework, in* THE HANDBOOK OF COMMUNICATION SKILLS 29 (Owen D.W. Hargie, ed., 2nd ed., 1997).

[78] *See, e.g.*, the studies reported in: Kees van den Bos, Riël Vermunt & Henk A. M. Wilke, *The Consistency Rule and the Voice Effect: The Influence of Expectations on Procedural Fairness Judgments and Performance*, 26 EUR. J. OF SOC. PSYCHOL. 411 (1996); TOM R. TYLER & YUEN J. HUO, TRUST IN THE LAW: ENCOURAGING PUBLIC COOPERATION WITH THE POLICE AND COURTS 62-63 (2002).

[79] *See* Jesse Fox et al., *Avatars Versus Agents: A Meta-Analysis Quantifying the Effect of Agency on Social Influence,* 30 HUMAN-COMPUTER INTERACTION 401 (2015) (comparing virtual representations controlled by artificially intelligent software-agents or humans).

least in part, such variations are the result of people's different expectations about interacting with humans and computers.[80]

Accordingly, the "Adjusted Expectations" hypothesis proposes that disputants' varying expectations about interacting with human and software third-parties will lead them to react differently to instrumental and principal ODR.

2. *INSTRUMENTAL MEDIATION: GREATER EXPECTATIONS, LOWER SATISFACTION*

Research in the field of computer mediated communication (CMC) between human actors typically evaluates it against the standard of face-to-face interaction.[81] Accordingly, it suggests that people are likely to find the kind of lean, structurally-constrained online textual communication available on most e-commerce ODR platforms (as well as on *EZSettle*) less suitable for nuanced tasks such as dispute resolution.[82] According to *Media Richness Theory* (MRT),[83] a lean medium of communication is less suited for tasks such

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[80] For example, in an early study that compared subjects' cooperation with perceived-human and computer players (both played by computer) during 100 rounds of the Prisoner's Dilemma game, participants cooperated more with the human player (55%) than with the computer player (35%), and they found the computer player was more rigid, less adaptable, less kind, more competitive, and less honest than the human player. The researchers suggested that in managing their decisions in the game, people take into account the expectations (referred to as representations in the study) through which they perceive the experience, which are formed by considering what the game is capable of, what the partner is capable of, and what they themselves are capable of. J. C. Abric & J. P. Kahan, *The Effects of Representations and Behavior in Experimental Games*, 2 EUR. J. SOC. PSYCHOL. 129 (1972).

[81] *See* Mary J. Culnan & M. Lynne Markus, *Information Technologies*, *in* HANDBOOK OF ORGANIZATIONAL COMMUNICATION: AN INTERDISCIPLINARY PERSPECTIVE 420 (Fredric M. Jablin et al., eds.1987) (discussing the "cues filtered out" effect in online communication and its implications on regulating social interaction, supplying valuable information for forming impressions and perceptions (including about the truthfulness of a communication), and understanding the social context and content of communications).

[82] *See also* Robert C. Bordone, *Electronic Online Dispute Resolution: A Systems Approach–Potential Problems, and A Proposal*, 3 HARV. NEGOTIATION L. REV. 175, 180-81 (1998) ("[T]he ultimate effect of using a computer-mediated communication to deliver 'difficult' or 'uncomfortable' news or feelings can actually lead to more rather than less conflict between the involved parties . . . due to the narrower and more constrained means of communicating."); Gilliéron, *supra* note 15.

[83] *See* Richard L. Daft & Robert H. Lengel, *Information Richness: A New Approach to Managerial Behavior and Organizational Design*, 6 RESEARCH IN ORGANIZATIONAL BEHAVIOR 191 (1984) (proposing that the richness of media is defined by four parameters that render it better suited for complex tasks: *Language Variety* refers to the ability to

as dispute resolution, which involve ambiguity, high interdependence, and socio-emotional content.[84] *Social Presence Theory* (SPT), which focuses on the manner people experience themselves and make sense of social interactions, yields similar predictions. SPT is concerned with the way people perceive information, make attributions about others, and deem certain behaviors appropriate.[85] Lean media constrain disputants' ability to create social presence—project themselves, perceive others, and sense that they are perceived by others as "real."[86] Consistent with these predictions, studies comparing email and face-to-face negotiations suggest that online negotiators typically enter the process with low expectations about their ability to negotiate with their counterpart (especially with respect to interpersonal trust), resulting in diminished process cooperation, minimal information sharing, reduced cooperation, and lower reported levels of trust.[87]

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convey natural language rather than just numeric information; *Multiplicity of Cues* refers to the number of ways in which information could be communicated; *Personalization* refers to the ability to personalize the message; and *Rapid Feedback* refers to the ability to respond to the communicator in real (or near-real time).

[84] In equivocal situations, information can be interpreted in more than one way. Since it is typically unclear what specific type of data it required to reduce equivocality, rich media will likely be better suited to support the task at hand. *See also* Alan R. Dennis & Joseph S. Valacich, *Rethinking Media Richness: Towards a Theory of Media Synchronicity*, HICSS (1999).

[85] *See* Joseph B. Walther, *Computer-Mediated Communication: Impersonal, Interpersonal and Hyperpersonal Interaction*, 23 COMM. RESEARCH 3 (1996); Guoqiang Cui, Barbara Lockee & Cuiqing Meng, *Building Modern Online Social Presence: A Review of Social Presence Theory and Its Instructional Design Implications for Future Trends*, EDUC. INF. TECHNOL. 2 (published online: March 11, 2013, DOI: 10.1007/s10639-012-9192-1); Jennifer C. Richardson & Karen Swan, *Examining Social Presence in Online Courses in Relation to Students' Perceived Learning and Satisfaction*, 7 J. ASYNCHRONOUS LEARNING NETWORKS 68 (2003); Chih-Hsiung Tu, *On-Line Learning Migration: From Social Learning Theory to Social Presence Theory in a CMC Environment*, 23 J. NETWORK & COMPUTER APPLICATIONS 27 (2000).

[86] See the review in Patrick R. Lowenthal, *The Evolution and Influence of Social Presence Theory on Online Learning*, *in* ONLINE EDUCATION AND ADULT LEARNING: NEW FRONTIERS FOR TEACHING PRACTICES 124, 129-131 (Terry T. Kidd, ed. 2010). The terms "social presence" was popularized by Short et al., in the context of "offline" interactions, referring to it as "the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships." John Short, Ederyn Williams & Bruce Christie, THE SOCIAL PSYCHOLOGY OF TELECOMMUNICATIONS 65 (1976).

[87] *See* Charles E. Naquin & Gaylen D. Paulson, *Online Bargaining and Interpersonal Trust*, 88 J. APPL. PSYCHOL. 113 (2003); Leigh L. Thompson & Janice Nadler, *Negotiating via Information Technology: Theory and Application*, 58 J. SOC. STUD. 109 (2002). *See also* the discussion in Noam Ebner, *ODR and Interpersonal Trust*, *in* ONLINE DISPUTE RESOLUTION: THEORY AND PRACTICE (Mohamed S. Abdel Wahab et al., eds.) 203, 223

To summarize, in instrumental ODR, disputants are expected to compare the mediator's performance to the experiential bench-mark of human face-to-face interaction. Thus, on a structured text based ODR system such as *EZSettle*, disputants likely perceive themselves as less capable of understanding, participating in, and influencing the process and outcome, and the mediator as limited in their ability to cultivate a fruitful and meaningful interaction. This sense of diminished ability to engage in the process is expected to negatively affect disputants' procedural, interactional, and informational justice experiences, as well as their personal experiences and evaluations of the neutral.

3. *PRINCIPAL MEDIATION: REDUCED EXPECTATIONS, HIGHER SATISFACTION*

Arguably, people's expectations about the richness of communication and creating social presence are lower when they communicate with software agents than with humans. On the one hand, in consistency with PAD, disputants' adjustment of procedural expectations (and behavior) to a lower evaluative bar is likely to result in their feeling less constrained by a structured text-based interface in principal ODR. On the other hand, there are other cardinal concerns regarding the ability of a software mediator to perform its role that may affect disputants' procedural justice experiences. For example, a software mediator may seem depersonalized, mechanical, or excessively formal in a manner that negatively affects the quality of the interaction and service provided. However, research shows that advanced computer agents—even ones that are represented by simple text messages or low-fidelity cartoon-like characters—can exhibit conversationally appropriate social, emotional, and personality features.[88] People were shown to react to a computer's

(2012) (concluding that "we expect to find our [online] negotiation opposites untrustworthy, and indeed—we find them to be so.") and McGinn & Croson, *supra* note 21, at 34 (reviewing key empirical studies on the topic). Giordano et al. compared face-to-face to online instant chat messaging negotiation, concluding that people find it harder to detect deception in computer mediated negotiation. George Giordano et al., *The Influences of Deception and Computer-Mediation on Dyadic Negotiations*, 12 J. OF COMPUTER-MEDIATED COMM. 362 (2007). These statements should be qualified: email practices are constantly changing, and as Ebner suggests, may no longer be appropriately discussed in a monolithic fashion: the various software and hardware used for emailing impact the nature of the experiences it fosters. *See* Noam Ebner, *Negotiating via (the New) Email*, *in* NEGOTIATION EXCELLENCE: SUCCESSFUL DEAL MAKING (Michael Benoliel, ed., 2nd edition 2014).

[88] *See* James Blascovich et al., *Immersive Virtual Environment Technology as a Research Tool for Social Psychology*, 13 PSYCHOLOGICAL INQUIRY 103 (2002); Maia

personality,[89] ethnic cues,[90] and gender cues,[91] identify a computer as a teammate,[92] and attribute to it responsibility.[93] People also exhibit politeness,[94] intimacy,[95] and reciprocal behavior[96] towards computers, and respond to flattery and praise by them.[97] The *Computers Are Social Actors* (CASA) paradigm suggests, therefore, that computers can "elicit a wide range of social behaviors even though users know that the machines do not actually possess feelings, 'selves,' genders, or human motivations."[98] Based on CASA, we can

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Garau, *The Impact of Avatar Fidelity on Social Interaction in Virtual Environments*, Unpublished PhD Thesis, University College London (2003), http://www.itu.dk/people/khhp/konceptudvikling/; Jan M. Allbeck & Norman I. Badler. *Embodied Autonomous Agents*, *in* HANDBOOK OF VIRTUAL ENVIRONMENTS 313 (Kay M. Stanney, ed. 2002). See also the works cited *infra* in note 98.

[89] *See* Clifford Nass et al., *Can Computer Personalities Be Human Personalities?*, 43 INTL. J. HUMAN–COMPUTER STUDIES 223 (1995); Youngme Moon & Clifford Nass, *How "Real" Are Computer Personalities? Psychological Responses to Personality Types in Human-Computer Interaction*, 23 COMMUNICATION RESEARCH 651 (1996).

[90] *See* Jean A. Pratt et al., *Looking at Human–Computer Interface Design: Effects of Ethnicity in Computer Agents*, 19 INTERACTING WITH COMPUTERS 512 (2007).

[91] *See* Clifford Nass, Youngme Moon & Nancy Green, *Are Computers Gender-Neutral? Gender Stereotypic Responses to Computers*, 27 J. APPL. SOC. PSYCHOL. 864 (1997).

[92] *See* Clifford Nass, Brian. J. Fogg & Youngme Moon, *Can Computers be Teammates?*, 45 INTL. J. HUMAN-COMPUTER STUDIES 669 (1996); Daniel Johnson & John Gardner, *The Media Equation and Team Formation: Further Evidence for Experience as a Moderator*, 65 INTL. J. HUMAN-COMPUTER STUDIES 111 (2007).

[93] *See* Youngme Moon & Clifford Nass, *Are Computers Scapegoats? Attributions of Responsibility in Human-Computer Interaction*, 49 INTL. J. HUMAN-COMPUTER STUDIES 79 (1998).

[94] *See* Clifford Nass, *Etiquette Equality: Exhibitions and Expectations of Computer Politeness*, 47 COMMUNICATIONS OF THE ACM 35 (2004); Reeves & Nass, *infra* note 98, at 19-36; Clifford Nass, Youngme Moon & Paul Carney, *Are People Polite to Computers Responses to Computer-Based Interviewing Systems*, 29 J. APPL. SOC. PSYCHOL. 1093 (1999); Pamela Karr Wisniewski & Michael Prietula, *CASA, WASA, and the Dimensions of Us*, 26 COMPUTER-HUMAN BEHAV. 1761 (2010).

[95] Youngme Moon, *Intimate Exchanges: Using Computers to Elicit Self-disclosure from Consumers*, 26 J. CONSUMER RES. 324 (2000).

[96] Brian J. Fogg & Clifford Nass, *How Users Reciprocate to Computers: An Experiment That Demonstrates Behavior Change*, Proceedings of CHI Conference: Extended Abstracts on Human Factors in Computing Systems 331 (1997).

[97] Brian J. Fogg & Clifford Nass, *Silicon Sycophants: The Effects of Computers That Flatter*, 46 INT'L J. HUMAN-COMPUTER STUD. 551 (1997).

[98] CLIFFORD NASS, JONATHAN STEUER & ELLEN R. TAUBER, COMPUTERS ARE SOCIAL ACTORS, PROCEEDINGS OF THE SIGCHI CONFERENCE ON HUMAN FACTORS IN COMPUTING SYSTEMS: CELEBRATING INTERDEPENDENCE 72, 72 (1994). *See also* BYRON REEVES & CLIFFORD NASS, THE MEDIA EQUATION: HOW PEOPLE TREAT COMPUTERS, TELEVISION,

predict that a principal ODR software mediator that projects minimal anthropomorphic and interactional cues[99] will sufficiently overcome these interactional challenges.

To summarize, in online mediation on a lean ODR system such as *EZSettle*, where the third-party's role revolves around facilitating the interaction between the parties without controlling the decision, the *Adjusted Expectations Hypothesis* predicts that disputants would report more positive procedural experiences in principal mediation than in instrumental mediation.

B. Online Arbitration: Human Autonomy and Machine Made Justice

In arbitration processes, the third-party's main function is to issue a binding-decision that will settle the dispute for the parties.[100] There are two primary reasons for making different hypothetical predictions about online arbitration and mediation. First, procedural justice studies repeatedly demonstrate that fairness judgments are sensitive to variations in process-control and decision-control. Second, theories of law and technology suggest that people may be inherently less comfortable relinquishing their decision autonomy to software than to other people. It is therefore hypothesized that disputants will report more positive procedural justice experiences in *instrumental* online arbitration.

Principal online arbitration raises challenging normative concerns about the nature of law and justice and the acceptable boundaries of human autonomy. On the one hand, a software arbitrator may seem less susceptible to bias and other forms of human error because it is presumed to consistently and objectively apply the decisionmaking rules it is programmed to follow. Thus, as long as a principal arbitration system is transparent about the way it operates, PAD, MRT and SPT suggest that it would evoke more positive procedural justice attitudes than an instrumental system, because disputants

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AND NEW MEDIA LIKE REAL PEOPLE AND PLACES (1996); Clifford Nass & Youngme Moon, *Machines and Mindlessness: Social Responses to Computers*, 56 J. SOC. ISSUES 81, 82 (2000); CLIFFORD NASS & CORINA YEN, THE MAN WHO LIED TO HIS LAPTOP: HOW COMPUTERS CAN TEACH US ABOUT HUMAN RELATIONSHIPS (2010).

[99] EZSettle included multiple anthropomorphic and interactional cues, including chat-icons and semi-synchronous, conversational natural-language communication. *See infra* Section III.

[100] *See* Sarah Rudolph Cole & Kristen M. Blankley, *Arbitration*, *in* THE HANDBOOK OF DISPUTE RESOLUTION 318, 318 (Michael L. Moffitt & Robert C. Bordone, eds., 2012) ("Arbitration is a process by which a private third-party neutral renders a binding determination of an issue in dispute.").

would feel less constrained in communicating with a software third-party on *EZSettle*.

On the other hand, if one ascribes to a humanist concept of justice rather than a technical one, then the ability of a software arbitrator to yield fair resolutions is questioned altogether. Indeed, the idea of "machine made justice" typically evokes inherent resistance, because it is at odds with the perception that fairness and justice are distinctly human traits that cannot be generated even by the most advanced artificially intelligent software.[101] Although current natural language, speech recognition, and image processing technologies bestow software agents with unprecedented human-like abilities, software are still unable to reason and decide like humans. The complex and dynamic nature of legal phenomena makes it difficult to specify *ex ante* a sufficiently robust and accurate set of rules to make normatively reliable binding automated decisions across contexts, especially in situations that have not been encountered before.[102] Not only does it seem challenging to comprehensively 'translate' norms and justice concepts into concrete statements that software can process; as of date, a software arbitrator cannot

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[101] *See* JACQUES ELLUL, THE TECHNOLOGICAL SOCIETY 291–92 (John Wilkinson trans., 1964) (Jacques Ellul famously argued that "it is impossible to transform the notion of justice into technical elements . . . . If one pursues genuine justice (and not some automatism or egalitarianism), one never knows where one will end."). *See also* Scott J. Shackelford & Anjanette H. Raymond, *Building the Virtual Courthouse: Ethical Considerations for Design, Implementation, and Regulation in the World of ODR*, 2014 WIS. L. REV. 615, 636 (2014) (pointing out the difficulty that AI-powered ODR systems would have in making judicial decisionmaking because of their inability to consider the "impact to the wider society"); Nick Bostrom & Eliezer Yudkowsky, *The Ethics Of Artificial Intelligence*, *in* CAMBRIDGE HANDBOOK OF ARTIFICIAL INTELLIGENCE 316, 321-322 (William Ramsey & Keith Frankish, eds., 2014) (explaining that "it is fairly consensual that present-day AI systems lack moral status" because they possess neither sentience (capacity for phenomenal experiences such as feeling pain and suffering) nor sapience (capacities associated with higher intelligence, such as self-awareness), but that pending technological developments, AI could have moral status).

[102] Statistical algorithms use non-cognitive computational techniques to detect patterns in data in order to automate tasks or make predictions by employing heuristics or proxies to produce approximate outcomes, but their accuracy and normative appropriateness is debatable. *See* Harry Surden, *Machine Learning and the Law*, 89 WASH. L. REV. 87, 87 (2014) ("Modern AI algorithms . . . have been unable to replicate most human intellectual abilities, falling far short in advanced cognitive processes—such as analogical reasoning—that are basic to legal practice . . . a domain full of abstraction and uncertainty."); Bostrom & Yudowsky, *supra* note 101, 319-320 (discussing the challenges of designing "a[n AI] system that will operate safely across thousands of contexts; including contexts not specifically envisioned by either the designers or the users; including contexts hat no human has yet encountered).

use common sense, normative interpretation and creative analogy in the same ways humans do.[103]

Thus, the "reluctant subordination" hypothesis is driven by the idea that the effect of adjusted communicative expectations on procedural justice judgments (predicted by PAD, SPT and MRT) is superseded by the perceived limitation of software arbitrators to render fair and adequate decisions. This hypothesis is consistent with the replicable finding that "[t]he structural provision of opportunities for voice has no impact on perceived fairness unless the information given to the decision maker is believed to have been given adequate consideration"[104] and "particularistic attention."[105] Because it is intrinsically difficult to judge software's motives, sincerity, character, and trustworthiness,[106] it is challenging to believe a principal arbitrator can appropriately consider the merits and decide the outcome of a dispute. To summarize, the perceived nuanced nature of justice—and associated expectations for adequate and particularistic consideration—are at odds with the idea of automation.

At the end of the day, disputants' attitudes towards principal arbitration may depend on their philosophical stance about the boundaries of human autonomy *vis-à-vis* technology. Theories of law and technology address this question on a normative continuum, ranging from emphasis on the potential of *human autonomy and agency* to contain the implications of technology, to fear of structural *technological dominance* and unintended and uncontrollable consequences of technological systems and logic.[107] Instrumentalists are likely

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[103] *See also* RICHARD SUSSKIND, TRANSFORMING THE LAW: ESSAYS ON TECHNOLOGY, JUSTICE AND THE LEGAL MARKETPLACE 286–287 (2000) ("Computers have not yet been programmed to exhibit moral, religious, social, sexual, and political preferences akin to those actually held by human beings. Nor have they been programmed to display the creativity, craftsmanship, individuality, innovation, inspiration, intuition, commonsense, and general interest in our world that we, as human beings, expect not only of one another as citizens, but also of judges acting in their official role."). *But see* JOSEPH WEIZENBAUM, COMPUTER POWER AND HUMAN REASON: FROM JUDGMENT TO CALCULATION 207 (1976) (Artificial intelligence pioneer John McCarthy, who named the field, responded to the question "What do judges know that we cannot tell a computer?" with the unequivocal answer: "Nothing.").

[104] Tyler & Lind, *supra* note 70, at 76-77. *See also* Shapiro & Brett, *supra* note 19; Tom R. Tyler, *Conditions Leading to Value-Expressive Effects in Judgments of Procedural Justice: A Test of Four Models,* 52 J. PERSONALITY & SOC. PSYCHOL. 333 (1987).

[105] *See* Tyler & Lind, *supra* note 70, at 84 ("People want to believe that third parties care about their concerns, consider their arguments, and try to be fair to them–symbols of particularistic attention.").

[106] *See id.* at 76; TYLER & HUO, *supra* note 78, at 62-63.

[107] *See* Arthur Cockfield & Jason Pridmore, *A Synthetic Theory of Law and Technology,* 8 MINN. J. L. SCI. & TECH. 475 (2007).

to see principal online arbitration as a neutral tool at the service of its users;[108] substantivists are likely to express concern for its intended and unintended political, social and cultural impacts, particularly with respect to human autonomy.[109] Much of the literature in ODR echoes substantive concerns that online technology transforms the nature of dispute resolution processes, impacting stakeholders and institutions in non-neutral ways that embody non-transparent preference for certain values over others.[110] There are also explicit concerns in ODR literature about the inherent risk and fear associated with letting machines make binding decisions that influence people's lives.[111] The *Reluctant Subordination Hypothesis* predicts, therefore, that disputants will report more positive procedural justice experiences in instrumental online arbitration compared to principal arbitration.

C. *Online Med-Arb: Consistent Technology for Meaningful Participation*

In a typical med-arb process, if mediation does not result in an agreement between the disputants, the information that was exchanged in mediation is

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[108] ANDREW FEENBERG, TRANSFORMING TECHNOLOGY: A CRITICAL THEORY REVISITED 5-6 (2002) (arguing that the instrumental approach is widely entrenched in social science academia, government, and business).

[109] *See, e.g.*, Gregory N. Mandel, *History Lessons for a General Theory of Law and Technology*, 8 MINN. J. L. SCI. & TECH. 551, 551 (2007) ("[The] risks presented by new technologies can take varying forms: . . . concerns about individual autonomy and privacy, or concerns relating to community or moral values. Such risks and perceived risks often create new issues and disputes to which the legal system must respond."); CURTIS E. A. KARNOW, FUTURE CODES: ESSAYS IN ADVANCED COMPUTER TECHNOLOGY AND THE LAW 221 (1997) ("[N]ew technologies change our language, they introduce new guiding metaphors, and they thereby ultimately change the way in which we think about our culture and ourselves."); David Friedman, *Does Technology Require New Law?*, 25 HARV. J.L. & PUB. POL'Y 71, 71 (2001) ("Technological change affects the law . . . making existing legal categories obsolete, even meaningless."); Langdon Winner, *Do Artifacts Have Politics?*, 109 DAEDALUS 121, 122-125 (1980) (discussing the idea that technology has (intended and unintended) political consequences that determine social values).

[110] *See, e.g.*, Rabinovich-Einy & Katsh, *supra* note 30, at 50, 52 ("[D]igital technology is transforming the very nature of these processes . . . in ways that are bound to . . . impact . . . stakeholders and the organization alike . . . technology is by no means neutral and a particular software design reflects a preference for certain values over others.").

[111] *See, e.g.*, Lodder, *supra* note 33, at 146 ("[T]he Fourth Party . . . touches upon a topic that frightens people: technology replacing humans."); ARNO R. LODDER & JOHN ZELEZNIKOW, ENHANCED DISPUTE RESOLUTION THROUGH THE USE OF INFORMATION TECHNOLOGY (2010) (arguing that IT can be appropriately used in dispute resolution to advise humans, rather than make decisions).

subsequently considered by an arbitrator who renders a binding decision. In *EZSettle*, the mediator and arbitrator are not the same entity, and the process may be either principal or instrumental during both its mediation and arbitration phases, or alternate between principal and instrumental mediation and arbitration. As suggested earlier, disputants adjust their behavior in the process in accordance with their expectations about the human or software third-party they interact with. Thus, in med-arb processes that alternate between instrumental and principal ODR phases, disputants are likely to experience a communicative and strategic dissonance, because the arbitrator's decision is dependent on the input provided in the preceding mediation phase, which was communicated with a different audience in mind.[112]

There is ample evidence that people adjust their behavior—and specifically, the content and style of their messages—when they communicate with human and software agents.[113] Through the prism of PAD, a *multiple audience problem* arises when a communication needs to be designed "to simultaneously convey different messages to different listeners."[114] Thus,

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[112] *See also* Lee Ross & Andrew Ward, *Psychological Barriers to Dispute Resolution, in* 27 ADVANCES IN EXPERIMENTAL SOCIAL PSYCHOLOGY 255, 263-264 (Mark P. Zanna, ed., 1995) (discussing, among other psychological barriers to dispute resolution, "the individual's motivated effort to seek and preserve cognitive consistency, and conversely to avoid and reduce *dissonance* vis-à-vis his or her *actions*, values, feelings, or beliefs") (emphasis added).

[113] *See, e.g.*, Eyal Aharoni & Alan J. Fridlund, *Social Reactions Toward People vs. Computers: How Mere Labels Shape Interactions*, 23 COMP. HUM. BEHAV. 2175 (2007) (the mere label identifying an online interviewer as human or computer was found sufficient to affect subjects' responses to an interviewer. Subjects engaged in heightened impression management strategies (deferral to, or attempts to engage or appease) with the perceived-human interviewer); NICOLE SHECHTMAN & LEONARD M. HOROWITZ, MEDIA INEQUALITY IN CONVERSATION: HOW PEOPLE BEHAVE DIFFERENTLY WHEN INTERACTING WITH COMPUTERS AND PEOPLE, 5 PROCEEDINGS OF CHI 2003: HUMAN FACTORS IN COMPUTING SYSTEMS 281 (2003) (analyzing subjects' structured text-based conversations with a computer that gave scripted responses revealed that when participants believed they were conversing with a person (rather than a computer) they showed more behaviors associated with establishing the interpersonal nature of the relationship); Carolyn Penstein Rosé & Cristen Torrey, *Interactivity and Expectation: Eliciting Learning Oriented Behavior with Tutorial Dialogue Systems*, *in* HUMAN-COMPUTER INTERACTION, INTERACT 2005 323 (Maria F. Costabile & Fabio Paternò, eds., 2005) (exploring how students perceptions of tutor qualities affect their different responses to human and computer tutors); Timothy Robert Merritt, A Failure of Imagination: How and Why People Respond Differently to Human and Computer Team-Mates (2012) (Ph.D. thesis, (National University of Singapore) (outlining a series of experiments showing that a team-mate's identity as human or software results in different emotional, evaluative, and behavioral responses).

[114] Krauss & Morsella, *supra* note 73, at 152.

messages designed for a software mediator may be perceived by disputants as inadequate, or sub-optimal, for a human arbitrator, and vice versa. Strategic adjustment of messages when exchanging information, making offers or brainstorming solutions during mediation may come, therefore, at the price of either missing the full settlement potential in mediation or negatively affecting subsequent arbitration decisions. Therefore, the *Consistent Technology Hypothesis* predicts that disputants will report more positive procedural experiences in med-arb processes in which both processes are either instrumental or principal compared to processes that combine the two technologies.

Table 1 summarizes the predictions about the effects of instrumental and principal online mediation and arbitration processes on disputants' procedural justice experiences. An experiment testing the hypothesis is descried in section III. The results provide empirical support for some of the predictions. Section IV discusses the results, along with their implications.

Table 1: Summary of Hypotheses

Hypothesis	**Prediction**
Adjusted Expectations	In non-binding *mediation*, disputants will report more *positive* procedural experiences in *principal* ODR
Reluctant Subordination	In binding *arbitration*, disputants will report more *positive* procedural experiences in *instrumental* ODR
Consistent Technology	In *med-arb* processes, disputants will report more *positive* procedural experiences when both processes use the same type of technology, either instrumental or principal ODR.

IV. EXPERIMENT: DISPUTANTS' EXPERIENCES IN ODR

A. Experiment Design

An experiment was designed to examine whether disputants' experiences of procedural justice in ODR vary as a result of two characteristics of the ODR process: (a) the role of technology (instrumental/principal); and (b) the allocation of decision-control (disputants/third-party). In other words, the experiment tests whether the perception that an ODR process is managed by a

software or human third-party leads to differences in disputants' procedural justice experiences; and whether these experiences are sensitive to the neutral's control over the outcome (mediation or arbitration.) Importantly, the experiment does not compare the objective abilities of human and software third-parties; rather, holding constant the nature of the service provided, it captures how disputants' *subjective* procedural experiences differ when they *perceive* the third-party as either autonomous software or a person interacting with them via the online interface.

An experiment is an effective methodology for studying these questions because it allows manipulating ODR processes to measure the specific effects of the independent variables while holding constant potential confounding factors. As a comparison, field studies would have faced not only accessibility challenges, but also material differences in parties, case details, outcome, neutral performance, context and settings, that would have confounded the findings.[115] Concerns regarding external validity and realism[116] are mitigated in a twofold manner. First, experimentally-produced procedural justice effects have generally been replicated using other methodologies in field settings.[117] Second, in ODR there is close verisimilitude between the online experimental environment and real ODR environments, in terms of both interface design and setting (participation through a personal computer). Indeed, experiments are a standard methodology in procedural justice research[118] and increasingly in ODR studies.[119]

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[115] *See also* James A. Wall & Timothy C. Dunne, *State of the Art–Mediation Research: A Current Review* 28 NEG. J. 217, 229, 239-240 (2012) ("[I]nvestigating ongoing mediations is difficult, time consuming, and expensive–understandably, few disputants and mediators are even willing to allow researchers to 'sit in' on their mediations . . . researchers have relied upon surveys . . . [and] have made assumptions about causation . . . report[ing] mediator behaviors as the independent, causal factors . . . . This theory building can be complemented with laboratory studies of mediation.").

[116] *See, e.g.*, Robert M. Hayden & Jill K. Anderson, *On the Evaluation of Procedural Systems in Laboratory Experiments: A Critique of Thibaut and Walker*, 3 L. & HUM. BEHAV. 21 (1979).

[117] *See* MacCoun, *supra* note 63, at 171.

[118] *Id.* at 173.

[119] *See, e.g.*, Brooke Abrahams, Emilia Bellucci & John Zeleznikow, *Incorporating Fairness into Development of an Integrated Multi-agent Online Dispute Resolution Environment*, 21 GROUP DECISION & NEGOT. 3, 25-26 (2012) ("The key advantage of . . . experimental studies generally, is the reduced ambiguity in specifying the relationship between key variables. Also, it is possible to closely study the details of a process, such as conciliation, which would be generally impossible in a real life situation. Finally, it allows . . . impos[ing] new strategies in the situation that is safe but very difficult to do in the real situation."); Martin Gramatikov, *Methodological Challenges in Measuring Cost and Quality of Access to Justice* 1, 7 (TISCO Working Paper Series on Civil Law and Conflict

To date, only a handful of empirical studies attempted capturing disputants' experiences in ODR, focusing on issues such as gender,[120] hierarchical dynamics,[121] usability and outcome satisfaction,[122] availability of information,[123] and saving face.[124] An empirical approach similar to that of the reported experiment had been used previously to test procedural justice experiences in online video-based and text-based judicial processes.[125] The current experiment provides new insights concerning the procedural justice effects of automated (software-powered) and human-powered ODR.

Resolution System, 2007), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id= 1099392.

[120] *See* Martin A. Gramatikov & Laura Klaming, *Getting Divorced Online: Procedural and Outcome Justice in Online Divorce Mediation*, 14 J.L. & FAM. STUD. 97 (2012) (discussing female and male divorcees in ODR do not exhibit great differences in their perceptions of the quality of the online procedure and the quality of the outcome, with both parties assigning relatively high scores. Men tend to report higher monetary and time costs of the procedure, whereas women are more concerned with negative emotions and damage to important relationships).

[121] Katalien Bollen & Martin Euwema, *E-Supported Mediation: What Do We Learn From The Field?* Paper presented at the National Mediation Conference: Emerging Dynamics in Mediation–New Thinking, New Practices, New Relationships (Sept. 10-13, 2012) (discussing two studies, one an online divorce mediation process, and another comparing F2F mediation with a hybrid process combining online intake with F2F mediation in hierarchical labor settings. In both instances parties were satisfied with the online process; the hybrid process had an equalizing effect on parties' fairness and satisfaction perceptions).

[122] Marc Mason & Avrom Sherr, *Evaluation of the Small Claims Online Dispute Resolution Pilot* (Sept. 1, 2008), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1407631 (evaluating a 25-cases pilot of a court-connected online mediation process, focusing on disputants' reports of usability, cost and satisfaction with outcome).

[123] *See* Klaming et al., *supra* note 75 (discussing the results of two experiments designed to test the distributive effect of providing negotiators with information about their opponent's preferences and incentives independent of the resources that have to be divided).

[124] Jeanne M. Brett et al., *Sticks and Stones: Language, Face, and Online Dispute Resolution*, 50 ACAD. MGMT J. 85, 85 (2007) (reporting the finding of an analysis of text data from 386 disputes between eBay buyers and sellers which examined whether aspects of "saving face" as seen in language and emotion accounted for settlement likelihood. The analyzed texts were of interaction *before* mediators were assigned to the case and began working with the parties).

[125] Sela, *supra* note 68.

1. *INDEPENDENT VARIABLES*

The experiment follows a 2x2 factorial design, as summarized in Table 2. The first independent variable, *perceived technology* was operationalized into two levels: *Principal (Automated) ODR*—the process was perceived to be managed by an autonomous artificially intelligent software; and *Instrumental (Human-Powered) ODR*—the process was perceived to be managed by a person using the system to interact with the parties. The second independent variable, *decision-control* was also operationalized into two levels: *Arbitration*—the third-party issues a binding enforceable decision that settles the dispute;[126] and *Mediation*—the third-party facilitates communication and makes suggestions to help the parties reach their own joint decision.[127]

Table 2: Summary of Factorial Design

Perceived	**Instrumental Arbitration**	**Principal Arbitration**
Instrumental Mediation	Human Mediator	Human Mediator
	Human Arbitrator	Software Arbitrator
Principal Mediation	Software Mediator	Software Mediator
	Human Arbitrator	Software Arbitrator

To operationalize the independent variables *EZSettle*, an experimental ODR platform, was constructed to credibly support instrumental and principal mediation and arbitration processes. *EZSettle* holds constant across treatments all other process features, including procedural design, third-party input, counterparty input and outcome. To achieve this goal and maintain external validity[128] *EZSettle* followed a med-arb process,[129] where mediation and

[126] *See* Cole & Blankley, *supra* note 100.

[127] Kimberlee K. Kovach, *Mediation, in* THE HANDBOOK OF DISPUTE RESOLUTION 304, 304 (Michael L. Moffitt & Robert C. Bordone, eds., 2012) ("Mediation is commonly defined as a process in which a third party neutral, the mediator, assists disputing parties in reaching a mutually agreeable resolution . . . without forcing a decision on either party.").

[128] *Id.* (see the description of principal ODR processes, pointing out that they are typically offered in a two-tiered hybrid process which includes both principal and automated phases).

[129] Med-Arb is a hybrid process pursuant to which, by agreement, the parties engage in mediation with the intention of submitting all unresolved issues to final and binding arbitration.

arbitration were conducted sequentially, as either instrumental or principal ODR. The experimental manipulation, including the ODR system design and hypothetical dispute are described in detail further in the article.

2. *DEPENDENT VARIABLES*

The experiment captured disputants' *ex post* perceptions of procedural justice, the neutral, the outcome, and themselves. Due to the context-sensitivity of the four dimensions of procedural justice, there is no universal instrument to measure them; rather, "ad-hoc measures are given deference because they allow questions to be tailored to the varied situations in which justice has been examined."[130] Accordingly, drawing on instruments suggested in procedural justice studies in law and psychology,[131] negotiation,[132] and organizational behavior,[133] a post-experimental questionnaire was developed

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[130] Neil M. A. Hauenstein, Tim McGonigle & Sharon W. Flinder, *A Meta-Analysis of the Relationship Between Procedural Justice and Distributive Justice: Implications for Justice Research*, 13 EMP. RESP.. & RTS. J. 39, 42 (2001). *See also* Jerald Greenberg, *Organizational Justice: Yesterday, Today and Tomorrow*, 16 J. MGMT. 399 (1990); Tyler, *supra* note 18..

[131] Particularly the work of Tyler & Lind and their collaborators: E. Allan Lind & Tom R. Tyler, THE SOCIAL PSYCHOLOGY OF PROCEDURAL JUSTICE (1988). *See, e.g.,* Tyler *supra* note 18; Lind et al. *supra* note 18; Tyler *supra* note 62; Tyler & Lind *supra* note 65, Tyler & Blader *supra* note 65; Lind *infra* note 177; Tyler *infra* note 177; Tyler *infra* note 179; Tyler & Huo, *supra* note 78, at 55. *See also* MARTIN GRAMATIKOV, MAURITS BARENDRECHT, MALINI LAXMINARAYAN, JIN HO VERONSCHOT, LAURA KLAMING, CORRY VAN ZEELAND, A HANDBOOK FOR MEASURING THE COSTS AND QUALITY OF ACCESS TO JUSTICE (2010); Martin Gramatikov, Malini Laxminarayan & Maurits Barendrecht, *Assessment of the Validity and Reliability of a Methodology for Measuring the Costs and Quality of Access to Justice,* TISCO WORKING PAPER SERIES ON CIVIL LAW AND CONFLICT RESOLUTION SYSTEMS NO. 003/2010 (Feb. 2010), http://papers.ssrn.com/sol3/papers.cfm?abstract_id= 1559782; Gramatikov & Klaming, *supra* note 64, at 33-34.

[132] Jared R. Curhan, Hillary A. Elfenbein & Heng Xu, *What Do People Value When They Negotiate? Mapping the Domain of Subjective Value in Negotiation*, 91 J. PERSONALITY & SOC. PSYCHOL. 493 (2006); Rebecca Hollander-Blumoff & Tom R. Tyler, *Procedural Justice in Negotiation: Procedural Fairness, Outcome Acceptance, and Integrative Potential*, 33 L. & SOC. INQUIRY 473 (2008).

[133] *See* Colquitt, *supra* note 64, at 389; Gerald S. Leventhal, Jurgis Karuza Jr. & William R. Fry, *Beyond Fairness: A Theory of Allocation Preferences*, *in* JUSTICE AND SOCIAL INTERACTION: EXPERIMENTAL AND THEORETICAL CONTRIBUTIONS FROM PSYCHOLOGICAL RESEARCH 167 (Gerald Mikula ed., 1980) (proposing six rules for evaluating procedures: consistency of treatment, bias suppression, accuracy of information

to capture disputants' self-reported procedural experience. The instrument includes the following items: (a) *Procedural Justice*: process fairness, voice/participation, process control, decision control, bias suppression, and accuracy; (b) *Interactional Justice*: the third-party's attentiveness, respectfulness, and trustworthiness; (c) *Informational Justice*: explanation of process and clarity. The questionnaire included standardized questions with a 7-points response scale, using multiple indicators per each dimension (see Table 3). Two additional categories of procedural evaluations were captured: the *neutral*'s perceived performance in terms of fairness and effectiveness; and *disputants*' emotional experiences (affect),[134] satisfaction,[135] and sense of empowerment (self-efficacy) in completing the process (see Table 4). After responses were obtained, indicators were aggregated into indices (composite measures) based on theory and factor analysis (see Table 8 in the Appendix).

collection, decision correctability, representation of affected parties, and ethicality accordance with general standards of fairness and morality).

[134] *See* Karen A. Hegtvedt & Caitlin Killian, *Fairness and Emotions: Reactions to the Process and Outcomes of Negotiations*, 78 SOC. FORCES 269 (1999) (on the relationship between perceptions of procedural fairness and emotions, parties who regarded the process as fair were more likely to experience positive emotion (feel pleased about how it went) and less likely to express negative feelings such as agitation, anger, and resentment after the negotiation).

[135] Kees van den Bos et al., *Evaluating Outcomes by Means of the Fair Process Effect: Evidence for Different Processes in Fairness and Satisfaction Judgments*, 74 J. OF PERSONALITY & SOC. PSYCHOL. 1493, 1493 (1998) (research demonstrates that "fairness judgments do not always show the same effects as do satisfaction judgments, indicating differences in the way people form judgments on these two dimensions").

Table 3: Procedural Justice Measurement Instrument

Concept	Dimension	Indicato
Procedural Justice	*Process Fairness*	Agree/Disagree: Process was objective
		To what degree: Process was neutral
		To what degree: Process was fair
		Rules applied to parties: Same—Different
	Voice/ Participation	Agree/Disagree: Able to express views
		Agree/Disagree: Parties could present their side
	Process Control	Agree/Disagree: My views were considered in the process
		To what degree: I controlled the process
	Decision Control	Agree/Disagree: My needs were considered in the outcome
		My influence over the outcome: None--A lot
	Bias Suppression	Agree/Disagree: Treatment was influenced by my race, sex, age, nationality or other characteristics
	Accuracy	Information collected was: Accurate—Inaccurate
Interactional Justice	*Neutral Attentiveness*	Neutral was: Attentive--Not attentive
		Agree/Disagree: Mediator listened when I expressed my views
	Neutral Respectfulness	Neutral was: Respectful—Disrespectful
		Agree/Disagree: Neutral treated me with respect
	Neutral Trust-worthiness	Agree/Disagree: Neutral was trustworthy
		Neutral was: Untrustworthy—Trustworthy
Informational Justice	*Explanation of Process*	Neutral explained process: Not at all—Fully
	Neutral Clarity	Neutral was: Clear—Confusing

Table 4: Additional Procedural Measures

Concept	Dimension	Indicator
Neutral Performance	*Neutral Fairness*	Neutral was: Fair—Unfair
		Neutral was: Neutral--Not Neutral
	Neutral Effectiveness	Neutral was: Effective—Ineffective
		Neutral was: Competent—Incompetent
		Neutral was: Helpful—Unhelpful
Disputant Personal Experience	*Affect (Negative Emotions)*	Agree/Disagree: Process upset me
		Agree/Disagree: Process was stressful
		I felt in the process: Hopeless--Hopeful
	Empowerment (Self-Efficacy)	Process effect on self-image Positive—Negative
		Process effect on competency resolving disputes: Positive—Negative
	Certainty	During process I experienced: certainty—uncertainty
	Satisfaction	Process : Satisfied—Unsatisfied
		Process overall impression: Positive—Negative

3. *THE DISPUTE*

Participants received a "Fact Sheet," stating that they were randomly assigned to play the role of a student who bought a used laptop computer on PC4U.com, an e-commerce website for computers.[136] It provided information about the sale listing, the delivery, and the condition of the delivered computer. It further described the buyer's perspective about problems with the transaction, and indicated that pursuant to the buyer's complaint to PC4U.com, the buyer and seller were referred to *EZSettle* to resolve the dispute. The Fact Sheet contained additional information about the remedies the buyer is seeking, which allowed in conjunction with the information available to them

[136] Participants were led to believe that subjects could be assigned to play the role of either the buyer or the seller in the dispute. In effect all subjects were assigned to play the same buyer role.

for a multi-issue mediation process, and a variety of plausible outcomes. To increase the probability that arbitration will ensue, the Fact Sheet set high expectations about the "zone of possible agreement," rendering participants unlikely to accept the offers that the seller was scripted to make.

4. *THE MED-ARB PROCESS*

EZSettle was specifically designed as a mock ODR system for this experiment: generating a convincing manipulation while maintaining a *standardized performance* across treatments. To that end, *EZSettle* had to appear credible both as a principal autonomous mediation and arbitration software and as an instrumental platform facilitating communications between participants and human third-parties. Designing *EZSettle* as a med-arb process ensured that participants went through a standardized process and obtained a standardized outcome.[137]

EZSettle combined features of current ODR systems to support structured multi-issue information exchange, interest-identification, blind-biding and communication. The *mediation* phase was designed as an asynchronous shuttle mediation (the mediator interacts separately with the two parties, and delivers messages between them).[138] Parties were presented with the list of issues to be resolved and ranked the subjective importance of each issue to them. The mediator then led them through up to three rounds of offers and counter-offers, during which they were able to use designated text-boxes to send messages to the seller and mediator, as well as buttons to accept or reject offers.[139] Between offer rounds, the mediator made two suggestions aimed at advancing a mutually acceptable resolution by reducing "fixed-pie" perceptions and encouraging integrative solutions. Participants were asked to confidentially indicate on a 100-point scale their willingness to consider each of the mediator's suggestions and to adjust their subsequent offers. If

[137] The existence and nature of an outcome can significantly affect procedural experiences. Designing the experiment as a med-arb process avoids such variations and enables measuring only the effect of the perceived technology and decision control. Separating the two processes would have inevitably resulted in different (or absent) mediation outcomes and differences between mediation and arbitration outcomes. A med-arb process also allows holding constant the nature of participation in both mediation and arbitration processes. The discussion of limitations at the end of the article refers to some of the biases introduced by this design.

[138] A common mediation practice, this feature enabled a more credible manipulation of the interaction.

[139] Messages were exchanged in an asynchronous form along with the submitted offers to enable standardization of the messages according to the experimental script.

participants rejected the seller's third counteroffer, they were directed to arbitration. The experiment design was successful at ensuring that the vast majority of cases would advance to arbitration. *EZSettle* Arbitration began with a display of the information that the arbitrator will review prior to rendering the final decision. It included all the information shared in mediation. Participants were asked to confirm that the information is accurate and then wait for the arbitrator's final resolution. To enhance credibility, the decision was rendered after a few minutes. To mitigate distributive justice effects and enable identification of differences in disputants' process experiences, the outcome was held constant,[140] representing a reasonable, albeit not strikingly favorable, outcome in terms of the expectations set in the Fact Sheet. After reviewing the arbitration award, participants were prompted to complete the post-experimental questionnaire.

5. *MEDIATOR, ARBITRATOR AND SELLER*

In order to hold constant the nature and quality of the contribution and offers of the third-party across participants and treatments, the principal and instrumental neutrals, as well as the seller were standardized in all the experimental groups.[141] During the three rounds of mediation, the mediator

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[140] Tyler & Huo, *supra* note 78, at 54 ("[P]rocedural justice is distinct from, but not independent of, outcome concerns"). *See also id.* at 39 (suggesting that methodologically, the negative experience associated with unfavorable results will have greater impact on subjects than the positive experience of an overwhelmingly favorable outcome); *id.* at 14 (normatively, "[a]n important issue for justice research has been establishing the degree to which people accept decisions because of how they are made rather than because of their content") (internal citation omitted). For a meta-analysis of the relationship between distributive and procedural justice, see Hauenstein et. al., *supra* note 130, at 39.

[141] Software counterparts have been used in dispute resolution research to operationalize both software and human actors since the 1970s, and their use has become increasingly prevalent in recent years. *See, e.g.*, James D. Orcutt & Ronald E. Anderson, *Social Interaction, Dehumanization and the "Computerized Other"*, 61 SOC. & SOC. RES. 380 (1977) (describing an experiment in social awareness and procedural consequences in which participants were told they would be interacting with either another person or with a computer, both of which were enacted by the same programmed computer). *See also* Celso M. de Melo & Peter J. Carnevale, *Agent or Avatar? Using Virtual Confederates in Conflict Management Research*, Paper presented at the Annual Meeting of the Academy of Management (2013) (methodologically, this research practice has proved very useful in studying differences between interactions with humans and software). *See also* Nass & Moon, *supra* note 98, at 99 (describing multiple experiments in which "half of the participants are led to believe they are working with a computer, whereas the other half are led to believe that they are using a computer to communicate with a person in another room . . . all participants experience identical interactions . . . we are thus able to manipulate

sent messages to the buyer, whose content and frequency of delivery were standardized across treatments. While participants waited for the mediator and seller to react to their proposals and messages, a dynamic hover pop-up window appeared, requesting participants to wait "while the mediator communicates the offer to the seller." The page reloaded after ninety seconds with the Seller's response and offer, for continued interaction with the mediator. Manipulation of instrumental and principal processes was established and maintained continuously throughout the process using different *information* (short descriptions of the person or software tool); *visual representations* (avatars on the messaging interface) and minor language variations in the messages that were sent. The Seller's messages and offers in the process were similarly held constant.[142] Post-experimental manipulation checks confirmed that the manipulation was successful: participants believed that they were interacting with another student-participant and with either a human third-party (in instrumental treatments) or software third-party (in principal treatments).[143]

B. Experimental Procedure

The study was conducted as an online experiment, completed by a group of 86 students (68 undergraduate and 18 graduate) from Stanford University who participated in the study to receive credit for class research requirements.[144] Subjects' mean age was 21.2 years, the median was 21. Due

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participants' perceptions of their interaction partners while controlling all other elements of the experimental situation.").

[142] Nancy A. Welsh, *Perceptions of Fairness in Negotiation*, 87 MARQ. L. REV. 754, 764 (2004) (controlling for the fact that "mediation participants' procedural fairness perceptions are based very much upon the dynamics of their interaction with each other.").

[143] The credibility of *EZSettle*'s manipulation of instrumental and principal mediation and arbitration was honed over three rounds of pre-tests prior to running the experiment.

[144] The sample size is comparable with other similar experiments. *See, e.g.*, Klaming et al., *supra* note 75, at 144-145 (reporting a similar division of 84 student-participants in an online negotiation experiment into 6 treatments groups of 14 subjects each). A relatively small experimental sample size is useful in producing a conservative test of a hypothesis. *See* Matt Wilkerson & Mary R. Olson, *Misconceptions About Sample Size, Statistical Significance, and Treatment Effect*, 131 J. PSYCHOL. 627 (1997) (explaining that a small sample requires a greater treatment effect than a large sample to obtain an equal level of statistical significance); *see also* David Bakan, *The Test of Significance in Psychological Research*, 66 PSYCHOL. BULL. 423, 429 (1966) ("[T]he rejection of the null hypothesis when the number of cases is small speaks for a more dramatic effect in the population; and if the p value is the same, the probability of committing a Type I error remains the same. Thus one can be more confident with a small [sample size] than a large [one]."). Twenty one (21) students who signed up for the experiment could not complete it due to technical

to class composition, the subject population included 59 females and 27 males.[145] The recruitment process was designed to enhance the experimental manipulation and preserve external and internal validity.[146] Participants received instructions and familiarized themselves with their role in the dispute as described in the "Fact Sheet," and were then directed to a separate commercial-looking website: *EZSettle*, to begin the dispute resolution process. Upon logging in to *EZSettle*, participants were randomly assigned to one of six treatment groups. In groups 1-4, the process was described to participants, according to their specific treatment, as beginning with either human or software mediator and continuing, if necessary, with either human or software arbitrator.[147] After completing the med-arb process on *EZSettle*, participants were directed to a questionnaire about the two processes. Participants in treatment groups 5-6 were randomly assigned to either principal mediation or instrumental mediation. They were singled out to ensure that their mediation experiences are captured independent of their experiences in arbitration,[148] and thus responded to a questionnaire about mediation prior to arbitration.

C. *Results and Analysis*

1. PRINCIPAL FINDINGS

The results of the experiment tell an interesting story, mostly confirming the hypotheses. Given a particular dispute resolution process design, its perceived nature as principal or instrumental affects disputants' procedural

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problems running the experimental website on their personal computer. This technical attrition was not linked to any specific treatment group.

[145] There were no significant differences in results based on gender, age or career.

[146] Members of the subject pool received an email inviting them to participate in a study

pilot-testing *EZSettle*, a new web-service for resolving disputes. Participants were told they would be paired with another participant, and they would be randomly assigned to role-play either a buyer or seller in an e-commerce dispute that they would attempt to resolve. Participants were asked to check-in to the experiment by emailing the experimenter at the specific time designated to each pair, and the experimenter would reply with a link to the study website. To encourage authentic behavior and preserve external validity, participants completed the experiment in a typical setting for an ODR process—using their personal computers in a location of their choice.

[147] As explained in Section III, the design was successful as participants were almost invariably made to continue to arbitration.

[148] Subjects assigned to treatment groups 5-6 were aware that a med-arb process would ensue, but they were not informed of the identity of the arbitrator until the beginning of the arbitration process.

justice experiences. On *EZSettle*'s lean structured text-based interface, subjects felt higher levels of procedural justice in mediation with a perceived *software mediator*. In arbitration, the inverse trend was observed: subjects had more favorable procedural justice experiences when they believed a *human arbitrator* determined the case.[149] Interestingly, in both mediation and arbitration the largest effect was observed with respect to the most fundamental component of procedural justice: *voice*—the ability to effectively participate in the dispute resolution process. Finally, the hypothesis that a technologically-consistent med-arb process would yield more positive procedural justice experiences was not confirmed as a general rule. Rather, a post-hoc analysis of the significant interactions confirmed it only in one particular instance: participants who interacted with a (perceived) human mediator experienced greater levels of procedural justice if their dispute was subsequently considered by a human arbitrator rather than a software arbitrator. The detailed findings of the two-way analysis of variance (ANOVA) of the four med-arb treatments (1-4, N=58)[150] are described below and summarized in Tables 5-7.

2. *MEDIATION MAIN EFFECTS AND INTERACTIONS*

The results largely confirm the "Adjusted Expectations" hypothesis. *EZSettle* Participants had more favorable procedural justice experiences in principal online mediation conducted by software than in instrumental mediation by a human mediator, with an average difference in mean main-effect that approaches one point on a seven-point scale. The results summarized in Table 5 indicate that *EZSettle* participants felt that principal mediation was fairer, allowed them a stronger sense of participation/voice, and fostered greater levels of interactional justice than instrumental mediation. Furthermore, subjects who participated in principal mediation reported more positive evaluations of the mediator's performance as well as their own experiences: The software mediator was deemed more effective and attentive, and subjects felt greater certainty and

[149] No significant differences were found between the overall evaluation of mediators and arbitrators.

[150] No meaningful differences were found between mediation self-reports of subjects in control groups 5-6 and the experimental groups 1-4. Thus, unless indicated otherwise, the findings are based on an ANOVA of the four med-arb treatments (1-4, N=58). Variations in the number of observations are mostly the result of missing responses to specific questions; and in arbitration, some attrition (participants who settled the case in mediation). No notable differences were found between the entire sample and the small sub-group of participants who settled the dispute in mediation, possibly a result of the relatively small sample size.

less negative emotions in principal mediation. A marginally significant, result indicates that participants also felt more empowered in principal mediation. Overall, participants reported greater satisfaction with the principal mediation process than with the instrumental mediation process.

Table 5: Mediation Main Effects

Concept	Measure	Software Mediator (SD)	Human Mediator (SD)	Sig.
Procedural Justice	*Fairness*	5.16 (1.3)	4.17 (1.1)	F(1, 54)=8.78, p=.005 (N=58)
	Partici-pation (Voice)	5.75 (0.77)	4.44 (1.56)	F(1, 54)=16.42, p<.000 (N=58)
Interactional Justice	*Mediator Attentive-ness*	5.25 (1.02)	4.66 (1.17)	F(1, 54)=3.92, p=.050 (N=58)
Mediator Performance	*Mediator Effective-ness*	5.22 (1.32)	4.51 (1.28)	F(1, 54)=4.02, p=.050 (N=58)
Disputant Personal Experience	*Certainty*	4.23 (1.59)	3.32 (1.25)	F(1, 54)=5.65, p=.021 (N=58)
	Negative Affect	3.71 (1.53)	4.79 (1.43)	F(1, 53)=7.18, p=.010 (N=57)
	Process Satisfacti on	4.6 (1.38)	3.61 (1.06)	F(1, 52)=8.62, p=.005 (N=56)
	Empower ment	4.27 (1.46)	3.59 (1.21)	F(1, 53)=3.38, p=.072 (N=57)

3. ARBITRATION MAIN EFFECTS

The results are consistent with the "Reluctant Subordination" hypothesis, which predicts people would prefer to subject themselves to the decisionmaking power of a human arbitrator rather than to that of software. Participants in instrumental arbitration reported experiencing a greater sense of voice/participation as well as higher levels of informational justice. Furthermore, the human arbitrator was deemed more respectful, and with marginal significance also more trustworthy, than the software arbitrator.[151]

Table 6: Arbitration Main Effects

Concept	Measure	Software Arbitrator (SD)	Human Arbitrator (SD)	Sig.
Procedural Justice	*Participation (Voice)*	2.75 (1.94)	4.77 (1.66)	F(1, 42)=13.67, p=.001 (N=46)
Informational Justice	*Informational Justice*	4.41 (1.27)	5.18 (1.01)	F(1, 42)=5.27, p=.027 (N=46)
Interactional Justice	*Arbitrator Respectfulness*	4.54 (1.22)	5.20 (0.95)	F(1, 42)=4.11, p=.049 (N=46)
	Arbitrator Trustworthiness	4.54 (1.41)	4.91 (1.63)	F(1, 42)=3.23, p=.079 (N=46)

4. INTERACTIONS

Analysis of the significant and marginally significant interactions in the experiment suggests that the "Consistent Technology" hypothesis" requires further refinement and study. A post-hoc analysis revealed only one consistent trend of simple main effects: subjects who participated in instrumental

[151] Additional results that were not statistically significant (that were excluded from Table 5 and 6) point to a similar trend with respect to participants' experiences of instrumental and principal arbitration. For example: Arbitrator Fairness (5.06; 5.72); Negative Emotions (3.27; 3.07); Arbitrator Effectiveness (5.15; 5.33); Empowerment (4.63; 4.80).

mediation preferred instrumental arbitration over principal arbitration. In other words, in med-arb process in which a human mediator was involved, subjects preferred that a human arbitrator—and not a software arbitrator—would issue a final binding decision based on the information shared in mediation.

Specifically, participants in instrumental mediation reported experiencing greater process control in mediation and greater process fairness in arbitration when their case was later arbitrated by a human arbitrator rather than a software arbitrator. Furthermore, subjects whose case was mediated by a human mediator were under a stronger impression that the same rules were applied to all parties if their case was later arbitrated by a human arbitrator, and they felt not only that the arbitration process was more objective[152] but also that the outcome was fairer.

Table 7: Med-Arb Interaction Effects Given Instrumental Mediation (by Human)

Measure (Interaction Sig.)	**Software Arbitrator (SD)**	**Human Arbitrator (SD)**	**Simple Main Effect Sig.**
Mediation Process Control (F (1,54)=4.03, p=*0.05*)	3.13 (1.57)	4.15 (1.09)	p=0.024
Same Rules Applied to Arbitration Parties (F (1,41)=3.21, p=*0.081*)	4.64 (1.57)	5.90 (1.28)	p=0.047
Arbitration Process Objectivity (F (1,41)=4.42, p=*0.042*)	4.18 (1.94)	5.40 (1.08)	p=0.084
Outcome Fairness (F (1,41)=4.42, *p=0.062*)	3.40 (1.87)	4.69 (1.73)	p=0.056

5. *ANALYSIS*

The findings are consistent with most of the theoretical predictions regarding instrumental and principal online mediation and arbitration on a lean text-based ODR system. The higher levels of procedural justice that were reported in principal mediation are consistent with the "Adjusted Expectations" hypothesis, driven by PAD, MRT, SPT and CASA Paradigm.

[152] The composite measure of overall process fairness in arbitration was also marginally significant (F (1,41)=4.42, interaction: p=0.062, main effect: p=0.089).

It postulates that the relatively constrained and structured nature of online interaction on *EZSettle* would have a greater negative impact on instrumental mediation than on principal mediation because people have lower expectations communicating with a software mediator compared to a human mediator. In other words, given a lean text-based structured ODR process, disputants' expectations about the mediation process are more likely to be failed in instrumental mediation compared to principal mediation. The most striking disparity in procedural experiences was observed in subjects' perceived ability to *participate* in the process: they reported having almost 30% more *voice* in principal mediation than in instrumental mediation. Indeed, on *EZSettle*'s lean text-based interface, parties felt more able to "present their side of the story" and "express their views" if their input was considered by a software mediator rather than a human mediator. This finding is important because in dispute resolution contexts, people tend to judge procedures primarily in terms of opportunities for input and consistency of treatment.[153] It is plausible that the disparity in perceived voice drives differences in other dimensions, and in any event, the results are consistent with the frequently replicated finding that procedural justice, interactional justice, affect, and process satisfaction are positively correlated.

The finding that participants had more positive procedural justice experiences in instrumental arbitration by a human arbitrator compared to principal arbitration by a software arbitrator is particularly striking given the experiment design. While the mediation process on *EZSettle* entailed significant interaction through information exchange, interest identification, settlement offers and dynamic input from the mediator, the arbitration process provided participants with very limited opportunities to form judgment. It involved only minimal interaction: reviewing previously exchanged information on a static webpage and awaiting the arbitrator's final determination. Considering that the process and outcome were constant and only the perceived nature of the arbitrator as human or software was manipulated, the observed differences lend support to the rationale behind the "Reluctant Subordination" and "Adjusted Expectations" hypotheses. They suggest that disputant's perceptions, expectations and attributions about interacting with software and human arbitrators greatly influence their procedural justice experiences. A particularly striking finding in this respect is that participants' felt substantially more "able to present their side of their story" in instrumental arbitration (4.77) compared to arbitration by software

[153] *See* Tyler, *supra* note 18, at 127. Tyler's finding is consistent with the finding of this study in that a software mediator, which is not subject to most human decisionmaking biases, may also be perceived as more consistent than a human mediator.

(2.75), a 2-point difference reflecting a 73% increase in sense of participation (voice). It also marks the difference between a positive sense of voice and a negative sense of voice (bigger or smaller than 3.5 on a 7-point scale).

The finding that the human arbitrator was deemed clearer and more respectful carries significant weight. Research on binding dispute resolution procedures found that respectful treatment was the most important variable in fairness evaluations.[154] Informational justice and interactional justice were found to serve as heuristics for procedural justice judgments, especially in instances where it is difficult to judge the quality of the process or outcome.[155] Such circumstances are typical for ODR (especially in private settings) and were characteristic also of the experiment: participants had no knowledge of how their outcome fares compared to others and received no explanation about how and why the arbitrator reached the final decision. In such instances, disputants' informational and interactional justice judgments are particularly salient.

Finally, the observed interactions lend support to the importance of expectations and consistency, albeit only in the context of a med-arb process involving a human mediator. Through the prism of PAD, a *multiple audience problem* arises when a communication needs to be designed "to simultaneously convey different messages to different listeners."[156] In technologically inconsistent processes, disputants switch between human and software third-parties (audiences). This switch can lead to a cognitive and behavioral dissonance because it requires them to adjust their behavior to meet their divergent expectations about such interactions, and it is likely to cause frustration due to the perceived inability to maximize the benefits of each process.[157] The post-hoc analysis of the interaction effects provides some support to the idea that disputants experience greater procedural justice when

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[154] *See* Lind et al., *supra* note 18 (discussing fairness experiences in courts).

[155] *See supra* text and references accompanying note 70.

[156] Krauss & Morsella, *supra* note 73, at 152.

[157] For example, interacting with a software third-party, one may be less concerned with appearing reasonable than when interacting with a human third-party. As a result, in a med-arb process commencing with instrumental mediation one may make less competitive offers to appear reasonable, which would seem disadvantageous if principal arbitration follows, because in that case, absent motivations such as appearing reasonable, one may have preferred making proposals that would maximize economic gains. *See* Lee Ross & Constance Stillinger, *Barriers to Conflict Resolution*, 7 NEGOT. J. 389, 400 (1991) (noting that disputants wish "to appear reasonable and to cultivate the mediator's goodwill . . . [by] compromis[ing] . . . rather than striving for still more favorable terms."); Russell Weiss, *Some Economic Musings on Cybersettle*, 38 U. TOL. L. REV. 89 (2006) (discussing potential game-theoretic manipulations in one type of principal online arbitration: blind-bidding).

the nature of their participation in *instrumental* mediation does not seem at odds with their expectations about arbitration, as reflected in their preference for a human arbitrator over automated arbitration by software. The fact that this effect was detected only in med-arb processes that involve instrumental mediation lends further support to the "Reluctant Subordination" hypothesis. First, subjects whose case was mediated by a human mediator were later under a stronger impression that the same rules were applied to all parties if their case was later arbitrated by a human arbitrator. Second, they felt that the arbitration process was more objective and that the outcome was fairer. However, given the small number of significant results, these questions require further study and development.

V. DISCUSSION AND IMPLICATIONS

A. An Updated (Research) Agenda for ODR

World-over, there is a growing demand for designing effective and appropriate ODR systems and instituting normative frameworks to govern them.[158] Within a decade's time it will likely be difficult to find an institutional dispute resolution system that does not include, at the very least, an ODR component.[159] The trend of ODR institutionalization in mainstream dispute resolution is apparent in civil justice reforms that include a component of online courts and tribunals—such as in England, The Netherlands, the Canadian province of British Columbia[160] and international cross-border dispute resolution initiatives.[161] Accordingly, the issue now facing researchers, practitioners and policy-makers is not *whether* to use ODR, but rather how to *best employ* ODR. In this respect, it is no longer feasible, desirable, or useful to regard ODR as a homogenous phenomenon. The task ahead is to develop a particularistic understanding of the actual operation and effect of specific ODR technologies and process designs.

This article reflects this updated research agenda. It takes the view that ODR processes are an inevitable development, and aims to inform ODR system design and regulation efforts. It replaces the traditional comparison between face-to-face and online dispute resolution processes with an inter-

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[158] *See* Sela, *supra* note 3.

[159] *See* Orna Rabinovich-Einy & Ethan Katsh, *Technology and the Future of Dispute Systems Design*, 17 HARV. NEGOT. L. REV. 151, 152 (2012); Susskind, *supra* note 12; Susskind, *supra* note 13.

[160] *See supra* text accompanying note 9; Sela, *supra* note 68.

[161] *See supra* text accompanying note 10.

ODR procedural comparison. The proposed analytical framework for the role of technology in principal and instrumental binding and consensual ODR processes, and the reported experiment results that examine it empirically, sheds light on the important relationship between disputants, technology and procedural justice

The results confirm the proposition that the degree of autonomy and decision-control that an ODR technology possesses interact to affect disputants' experiences of procedural justice. When mediation, a non-binding dispute resolution process, is conducted on a lean text-based ODR system, disputants experience greater procedural justice in a software-run principal ODR process than in a human-facilitated instrumental ODR process. In contrast, in arbitration, where the arbitrator renders a binding decision, a human arbitrator in instrumental ODR appears more procedurally just. Limited evidence suggests that in a two-tiered med-arb ODR process commencing with instrumental mediation, disputants experience greater levels of procedural justice and distributive justice if technologically-consistent arbitration ensues, such that a human arbitrator renders the final decision and not a software arbitrator.

Further research is required to examine the generalizability of the findings to settings different from the one tested in the experiment. Nonetheless, since most ODR systems currently rely on structured text-based processes, the results are likely applicable to other comparable contexts.

B. Leveraging and Regulating the Role of Technology in ODR

The findings portray a promising picture regarding both instrumental and principal ODR: both technologies were shown to foster positive disputant procedural justice experiences,[162] regardless of decision-control. At the same time, the fact that instrumental and principal ODR processes each appeared better-suited for a different dispute resolution process design confirms the importance of looking at the role of ODR technology more intricately—beyond the singular concept of the "fourth party"—to address the practical and normative implications that they raise.

The continuous evolution of ODR technologies and implementations, as well as the growing number of dispute resolution service providers—including courts, governmental agencies and private entities—requires dispute system designers and regulators to determine when it is appropriate to use each type

[162] In both mediation and arbitration, both instrumental and principal ODR resulted in an average score of procedural justice measures that was higher than 3.5/7.

of ODR.[163] To date, ODR scholarship justified automation primarily on the grounds of cost-effectiveness, most commonly suggesting that using software to replace human third-parties would be appropriate only for simple low-value disputes.[164] This article suggests that decision-control is another relevant demarcation criterion.

Whether an ODR system serves as a communication platform for the disputants and third-party or as an autonomous dispute resolution service provider can be a helpful framework for discussing other related legal questions. For example, do principal ODR platforms perform an unlicensed practice of law?[165] Who owes ethical duties, bears professional responsibility and can be found liable in disputes handled by a principal ODR system: the software, its programmers, its dispute resolution system designers, the institutional provider?[166] The experiment results show that disputants are sensitive to representations an ODR system makes about its role in the process.

The observed preference for principal ODR in mediation is an encouraging signal for realizing much of the promise of ODR, and by extension—other advisory legal technologies. Principal ODR technologies enable less expensive, more efficient and consistent, treatment of disputes by relieving pressure in procedural bottlenecks; eliminating dependencies on limited physical and human resources, and introducing new qualities into the

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[163] *See* Lodder & Zeleznikow, *supra* note 111, at 12 (noting that the goal of ODR technologies "is not to develop computing paradigms but to use appropriately information technology to support dispute resolution.").

[164] *See e.g.,* Colin Rule, Vikki Rogers & Louis F. Del Duca, *Designing a Global Consumer Online Dispute Resolution (ODR) System for Cross-Border Small Value-High Volume Claims: OAS Developments*, 42 UNIVERSAL COMMERCIAL CODE L. J. 221, 234, 255 (2010) (describing a proposal for an ODR system for low-value cross-border business-to-consumer contract disputes); John Rothchild, *Protecting the Digital Consumer: The Limits of Cyberspace Utopianism*, 74 IND. L. J. 893 (1999); Betancourt & Zlatanska, *supra* note 25; Hornle, *supra* note 26. Some also emphasize the simplicity of the task. *See* Carneiro et al., *supra* note 33, at 238 ("[F]ully autonomous ODR systems . . . may not . . . be desirable, but there are many simple tasks that could be automated, releasing experts for a different work.").

[165] *See* Larson, *supra* note 30, at 548.

[166] *See* Steffen Wettig & Eberhard Zehendner, *The Electronic Agent: A Legal Personality under German Law?* In: LEA 2003: THE LAW AND ELECTRONIC AGENTS (Anja Oskamp & Emily M. Weitzenboeck, eds.) 97 (2003); Karnow, *supra* note 109, at 137 (discussing issues of liability in the context of distributed artificial intelligence); Lodder, *supra* note 33, at 151 (discussing the practical and legal relationships between the disputants, neutral, technology and technology provider in ODR); Larson, *supra* note 30, at 546–547 (discussing responsibility for negligence in ODR); Shackleford & Raymond, *supra* note 101, at 631–643.

process.[167] The fact that disputants reported a greater sense of procedural justice in principal mediation helps in mitigating many of the concerns associated with principal ODR.[168] It suggests that reliance on automation and artificial intelligence in non-binding processes can be an appropriate means for improving access to justice and redress.

Naturally, the receptiveness of disputants to ODR does not remove the need to monitor such applications. Whether or not they control the outcome, ODR technologies are not neutral: the values imbedded in the software code reflect specific normative choices, which can affect, implicitly and explicitly, the process and outcome.[169] Oversight is particularly important in principal ODR processes: absent any procedural supervision by a human-third party, ODR system designers and regulators must be transparent about their technological choices and guarantee that they protect, rather than erode, fundamental values.[170] Adherence to this duty may well determine whether policymaking in this area will adopt an instrumentalist or substantive approach to ODR,[171] and accordingly, whether the full potential of ODR can be realized.

C. Practical Implications

The fact that principal ODR systems, with their accessibility, operational and cost-effectiveness advantages, can be employed in certain circumstances without infringing on their users' procedural justice experiences (compared to an instrumental process) paves the way for many interesting applications.[172] Notably, ODR systems may present the first viable means for realizing Sander's vision of the multi-door courthouse. Sander envisioned an institution

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[167] *See supra* text accompanying notes 12–13, 35–37. *See also* Philip Leith, *IT and Law, and Law Schools*, 14 INT'L REV. OF L. COMPUTERS & TECH. 171, 178 (2000) ("[M]achines can be built which will either support . . . decision making or carry out tasks which are currently time consuming or expensive.").

[168] *See supra* text accompanying notes 24–25, 101–103, 107–109.

[169] *See supra* notes 29–30, 110 and accompanying text.

[170] *See also* Yochai Benkler, THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM 17–18 (2006) ("There is no guarantee that . . . information technology will lead to . . . improvements in innovation, freedom and justice . . . . That is a choice we face as society. The way we develop will, in significant measure, depend on choices we make in the next decade or so.").

[171] See the discussion accompanying footnotes 107–110.

[172] Many recognize this potential, *see, e.g.*, Rabinovich-Einy & Katsh, *supra* note 159, at 152 ("Pairing remarkable information processes tools with an information intensive activity such as DSD should lead to new opportunities to craft more effective and efficient dispute resolution and prevention systems.").

that would provide a solution for many of the fundamental problems in the administration of justice, by offering

> [A] flexible and diverse panoply of dispute resolution processes, with particular types of cases being assigned to differing processes (or combination of processes), according to some . . . criteria . . . [A] Dispute Resolution Center, where the grievant would first be channeled through a screening clerk who would then direct him to the process (or sequence of processes) most appropriate to his type of case.[173]

Throughout the years, many models of the multi-door courthouse emerged, but they are all challenged by the absence of a practical method for screening and directing cases to a particular process.[174] ODR systems could be a solution: they make it relatively easy to combine or switch between processes (negotiation, mediation, arbitration, adjudication; single neutral or a multi-neutral panel, etc.),[175] and technologies (principal vs. instrumental, text vs. video, synchronous vs. asynchronous, etc.).[176] Furthermore, ODR systems offer unprecedented flexibility in creating multiple tailored process designs. The experiment findings suggest that certain capacities, such as the work of Sander's "clerk," can be automated without denying disputants a sense of procedural justice.[177] Principal ODR modules can conduct case screening and routing, directed negotiation, mediation and certain forms of early neutral evaluation; instrumental ODR can be used for processes such as arbitration or adjudication. Dispute resolution systems could thus offer parties the option to transition between different procedural alternatives to meet their changing

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[173] Frank E. A. Sander, *Varieties of Dispute Processing*, *in* THE POUND CONFERENCE: PERSPECTIVES ON JUSTICE IN THE FUTURE: PROCEEDINGS OF THE NATIONAL CONFERENCE ON THE CAUSES OF POPULAR DISSATISFACTION WITH THE ADMINISTRATION OF JUSTICE 65, at 83–84 (A. Leo Levin & Russell R. Wheeler, eds., 1979).

[174] Barry Edwards, *Renovating the Multi-Door Courthouse: Designing Trial Court Dispute Resolution Systems to Improve Results and Control Costs*, 18 HARV. NEGOT. L. REV. 281, 322 (2013).

[175] *See* Rabinovich-Einy & Katsh, *supra* note 159, at 162 (discussing potential impacts of ODR on dispute resolution system design, and suggesting, among other things "the blurring of boundaries within process types" and "new types of processes and variations within each familiar category of processes," concluding that "boundaries are constantly being challenged and become more diffuse and flexible").

[176] *See* Sela, *supra* note 3.

[177] In fact, the results suggest that from disputants' perspective, principal ODR may be not only an *acceptable* procedural option; under certain circumstances it may be a *preferable* design option.

needs, at a lower cost relative to in-person or instrumental ODR options. The finding that parties experienced reduced procedural justice when transitioning from instrumental mediation to principal arbitration suggests, however, that a multi-door flexible ODR system should avoid instituting facilitative instrumental processes that progress to binding principal processes unless they devise strategies to mitigate the expected decrease in procedural justice levels that is associated with this process design.

Providing the option to conduct non-binding dispute resolution processes on principal ODR platforms can positively impact the accessibility and delivery of many dispute resolution services that would benefit from the cost-savings, increased volumes, and improved timeliness associated with automation. Most straightforwardly, principal ODR can level the playing field for disputants that cannot overcome certain barriers that characterize face-to-face dispute resolution services or even instrumental ODR, such as service fees, availability during business hours, or physical accessibility. Principal ODR processes could also transform the way certain disputes are handled. For example, principal ODR can be used to individually handle certain classes of disputes that are currently mostly addressed by collective mechanisms such as class-action, because it offers an alternative viable pathway for pursuing some of these claims, by overcoming barriers related to the cost/gain ratio or effectively reaching claimants without aggregation.

Finally, the findings bear practical implications to those involved in designing, operating, using, or regulating ODR systems. They show that variations in decision-control and software autonomy can be used to improve disputants' procedural justice experiences. Optimizing procedural justice experiences has important implications: regardless of outcome,[178] procedural justice strongly influences disputants' satisfaction with, evaluation of, preference for, and affect toward dispute resolution systems.[179] It also impacts

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[178] For a discussion of the empirical relationship between distributive and procedural justice, see Hauenstein et al., *supra* note 130.; *See also* Yochi Cohen-Charash & Paul E. Spector, *The Role of Justice in Organizations: A Meta-Analysis*, 86 ORG . BEHAV. HUM. DECISION PROCESSES 278 (2001); Jason A. Colquitt et al., *Justice at the Millennium: A Meta-Analytic Review of 25 Years of Organizational Justice Research*, 86 J. APPLIED PSYCHOL. 425 (2001).

[179] *See* Thibaut & Walker, *supra* note 64; E. Allan Lind, *The Psychology of Courtroom Procedure, in* PSYCHOLOGY OF THE COURTROOM 13 (Norbert L. Kerr & Robert M. Bray, eds., 1982); Tom R. Tyler, *The Role of Perceived Injustice in Defendants' Evaluations of Their Courtroom Experience,* 18 L. & SOC'Y REV. 51 (1984); Jean M. Landis & Lynne Goodstein, *When Is Justice Fair? An Integrated Approach to the Outcome Versus Procedure Debate*, 11 AM. B. FOUND. RES. J. 675 (1986).

evaluations of the institutions responsible for resolving disputes,[180] the perceived legitimacy of the decisionmaker,[181] decision acceptance,[182] and long-term adherence to agreements.[183] Since online service providers oftentimes lack enforcement mechanisms and reliable reputational cues, an informed design choice of instrumental and principal ODR services can significantly increase the voluntary enforceability of resolutions and the providers' institutional legitimacy. When the ODR service is provided by an online business intermediary such as e-Bay's Resolution Center[184] (an e-commerce marketplace) or Freelancer's online arbitration service[185] (a freelancing marketplace) an increase in procedural justice experiences may entail significant economic implications: contributing to a trustworthy and satisfying environment that attracts users.[186]

D. Final Remarks

This article follows a "demand-side" approach to evaluating ODR, that is: building a framework and methodology for capturing the perspective of *end-users* of ODR.[187] It underscores the importance of accounting for disputants'

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[180] Tyler, *supra* note 18, at 103–104; Robert Folger & Mary A. Konovsky, *Effects of Procedural and Distributive Justice on Reactions to Pay Raise Decisions*, 32 ACAD. MGMT. J. 115 (1989).

[181] *See* Tom R. Tyler, *Governing Amid Diversity: The Effect of Fair Decisionmaking Procedures on the Legitimacy of Government* 28 L. & SOC'Y REV 809 (1994).

[182] Tyler & Huo, *supra* note 78, at 55 (finding that procedural justice "has more influence than does outcome fairness . . . or outcome favorability"). *See also* Tyler, *supra* note 18, at 104.

[183] *See e.g.*, Dean G. Pruitt et al., *Long-Term Success in Mediation* 17 L. & HUM. BEHAV. 313 (1993); Dean G. Pruitt et al., *Goal Achievement, Procedural Justice, and the Success of Mediation*, 1 INT'L J. CONFLICT MGMT. 33 (1990).

[184] *See* eBay, *supra* note 49.

[185] *See* FREELANCER, http://www.freelancer.com/faq/topic.php?id=25 (last visited Aug. 28, 2017).

[186] Many believe that a global ODR system or a network of regulated private ODR systems is a necessary mechanism for removing barriers to international e-commerce and business. *See e.g.*, Vikki Rogers, *Knitting the Security Blanket for New Market Opportunities*, *in* ONLINE DISPUTE RESOLUTION: THEORY AND PRACTICE 95 (Mohamed S. Abdel Wahab et al., eds., 2012); Colin Rule, Louis F. Del Duca & Daniel Nagel, *Online Small Claim Dispute Resolution Developments–Progress on a Soft Law for Cross-Border Consumer Sales and the Development of a Global Consumer Law Forum*, 43 UNIFORM COMMERCIAL CODE L. J. 419 (2010); Rule et al., *supra* note 164.

[187] *See* Martin Gramatikov, *Methodological Challenges in Measuring Cost and Quality of Access to Justice*, TISCO Working Paper Series on Civil Law and Conflict Resolution Systems 3, 7 (2007),

perspective to guarantee appropriate and effective dispute resolution system design. However, whether the perceptions of technology end-users should be the focus of legal normative or regulatory discussions is a subject of debate.[188] One may doubt the desirability, altogether, of basing any prescriptive normative position on people's intuitive perceptual reactions, especially when they are gleaned from an experiment.[189] One response is that like other societal institutions that constrain individual conduct, the legitimacy and authority of dispute resolution mechanisms depends on their reflecting their constituents' values and preferences.[190]

Naturally, disputants' subjective procedural justice experiences should not be the sole normative consideration in the design and regulation of ODR. Attitudes are amenable to manipulation and can create an appearance of procedural fairness through provision of perceived dignity, respect, and voice that could distract disputants from outcomes that are substantively or normatively unfair by other criteria.[191] Objective justice criteria should also guide dispute system design, for example by creating processes that maximize the amount and quality of relevant information available to the decisionmaker or minimizing bias in the way evidence is presented.[192] Principal ODR processes involve an inherent risk for embedded bias and tradeoffs between objective and subjective procedural justice. Powered by big-data and modeling capabilities, principal ODR systems can tailor the process and outcome to what a particular disputant is likely to subjectively perceive as fair,[193] regardless of

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http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1099392 (explaining the difference between "demand side" and "supply side" research which discusses how legal institutions practice and interpret the concept of access to justice).

[188] Andrea M. Matwyshyn, *Technology, Commerce, Development, Identity*, 8 MINN. J. L. SCI. & TECH. 515, 531 (2007) ("Rarely is a technology user's perception or development presented as a focus of the overall regulatory picture . . . [but perhaps] the regulatory focus should move away from regulating the technology itself and move toward regulating the ways human interact with technology tools.").

[189] *See* Mark Kelman, *Intuitions*, 65 STAN. L. REV. 1291, 1296–1297 (2013) ("The . . . proposition—that intuitions, however intuitions are defined, count a great deal if our goal is to determine what is truly normatively desirable . . . —is extremely controversial"); Hayden & Anderson, *supra* note 116.

[190] Austin Sarat, *Studying American Legal Culture: An Assessment of Survey Evidence*, 11 L. & SOC'Y REV. 427, 430 (1977) ("[I]t would be strange, indeed, to call a legal system democratic if its procedures and operations were greatly at odds with the values, preferences, or desires of the citizens.").

[191] MacCoun, *supra* note 63, at 189.

[192] *See* Lind & Tyler, *supra* note 131, at 18–26 (discussing objective justice criteria and their limitations).

[193] Process personalization can be achieved either by directly capturing the disputant's characteristics, preferences and behavior or by statistically approximating them.

objective standards.[194] While such deferential treatment has the potential to maximize subjective procedural justice experiences, it may disadvantage less savvy disputants and it is at odds with fundamental values of equal and consistent treatment.

In considering the empirical findings of this study, one should be mindful of the sensitivity of procedural justice judgments to context. The participants in this experiment were Stanford University students—likely more literate and tech-savvy than the general population. They engaged in an ODR process on a lean text-based, semi-synchronous system, to resolve an e-commerce dispute with an anonymous seller without any reputational cues. Furthermore, the methodological considerations that justified using a med-arb process design in the experiment naturally affect the findings about each phase of the process. Principal and instrumental ODR processes should be tested in other contexts, using different system designs, research populations (especially less tech-savvy ones) and communication technologies.

Finally, the normative desirability of different ODR processes is a product of the system's functional competence and people's perceptions about it. The ever-growing immersion of human life in online technologies, and the rapid-pace of technological advancement, suggest that disputants' attitudes and experiences in ODR will continue to evolve over time.

[194] Rule, *supra* note 51, at 11 (for example, "eBay has total visibility into each user's usage patterns, history, and account data," which it can use not only to monitor and improve the ODR process, but also to propose different resolutions to users based on how valuable they are to eBay as revenue generators). *See also* Bostrom & Yudkowsky, *supra* note 102; Weiss, *supra* note 157; (discussing different potential manipulations to AI powered systems that can have unethical consequences); *see also* Shackelford & Raymond, *supra* note 101, at 635 ("[A]ny AI algorithm that seeks to replace even a minor portion of the justice system must be made robust against manipulation, which of course includes the ability of the business to alter outcomes and/or alter the decisionmaking process. . . .").

APPENDIX: FACTOR ANALYSIS

Table 8: Factor Analysis of Composite Measures

Measure	Indicators	Eigenvalue	Reliability*
Process Fairness	Process was objective (agree/disagree)	2.77	0.85
	Process was neutral (degree)		
	Process was fair (degree)		
	Rules applied to parties (same--different)		
Participation (Voice)	Able to express views (agree/disagree)	1.6	0.89
	Parties could present their side (agree/disagree)		
Process Control	My views were considered in process (agree/disagree)	1.37	0.83
	I controlled the process (degree)		
Decision Control	My needs were considered in the outcome (agree/disagree)	1.6	0.89
	My influence over the outcome (none--a lot)		
Neutral Attentiveness	Neutral was (Attentive--Not attentive)	1.43	0.85
	Mediator listened when I expressed my views (agree/disagree)		
Neutral Respectfulness	Neutral was (respectful—disrespectful)	1.54	0.87
	Neutral treated me with respect (agree/disagree)		
Neutral Trustworthiness	Neutral was trustworthy (agree/disagree)	1.67	0.91
	Neutral was (untrustworthy—trustworthy)		

Measure	Indicators	Eigenvalue	Reliability*
Informational Justice	Neutral was (clear—confusing)	1.31	0.81
	Neutral explained the process (not at all—fully)		
Neutral Fairness	Neutral was (fair—unfair)	1.69	0.91
	Neutral was (neutral--not neutral)		
Neutral Effectiveness	Neutral was (effective—ineffective)	2.48	0.89
	Neutral was (competent—incompetent)		
	Neutral was (helpful—unhelpful)		
Satisfaction with Process	Process (satisfied—dissatisfied)	1.68	0.91
	Overall impression with process (positive—negative)		
Self-Efficacy (Empowerment)	Process effect on self-image (positive—negative)	1.67	0.91
	Process effect on competency resolving disputes (positive—negative)		
Affect (Negative Emotions)	Process upset me (agree/disagree)	2.21	0.82
	Process was stressful (agree/disagree)		
	I felt in the process (hopeless--hopeful)		

* Reliability values for 2-items indices: correlation coefficient; for 3≤items indices: Chronbach's Alpha statistic.